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Court of Appeals,

STATE OF NEW YORK.

THE PEOPLE OF THE STATE OF NEW YORK, *Respondents,*

AGAINST

WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT, *Appellant.*

ASSOCIATION OF THE BAR
LIBRARY
CITY OF NEW YORK

No. 85.

CASE.

GEORGE T. QUINBY, DISTRICT ATTORNEY,
For the Respondents,

CHARLES S. HATCH AND
CHARLES SICKMON,
Attorneys for the Appellant.

BUFFALO, N. Y.:
PRINTING HOUSE OF JAMES D. WARREN'S SONS,
Office of the "Buffalo Commercial Advertiser."
1889.

Court of Oyer and Terminer 1

ERIE COUNTY.

THE PEOPLE OF THE STATE OF NEW YORK, 2
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

The grand jury of the County of Erie, by this indictment, accuse William Kemmler, otherwise called John Hort, of the crime of murder in the first degree, committed as follows, to wit: That the said William Kemmler, otherwise called John Hort, on the 29th day of March, in the year of our Lord, one thousand eight hundred and eighty-nine, at the City of Buffalo, in the County of Erie, aforesaid, with force and arms in and upon one, Matilda Ziegler, otherwise called 3
Matilda Hort, in the peace of the people of the State, then and there being, willfully, feloniously and with a deliberate and premeditated design to effect the death of her, the said Matilda Ziegler, otherwise called Matilda Hort, did make an assault: and that the said William Kemmler, otherwise called John Hort, the

152

This One
EYZD-N4Z-DZGB

4 said Matilda Zeigler, otherwise called Matilda Hort, with a certain hatchet axe and sharp instrument which he the said William Kemmler, otherwise called John Hort, in his hands, then and there had and held in and upon the head of her, the said Matilda Ziegler, otherwise called Matilda Hort, then and there willfully and feloniously and with a deliberate and premeditated design, to effect the death of her the said Matilda Zeigler, otherwise called Matilda Hort, did strike, beat, cut and wound giving unto her the said
5 Matilda Zeigler, otherwise called Matilda Hort, then and there with the said hatchet, axe and sharp instrument, aforesaid, in and upon the head of her the said Matilda Zeigler, otherwise called Matilda Hort, several mortal wounds of which said mortal wounds she the said Matilda Ziegler, otherwise called Matilda Hort, did at the City of Buffalo, and County of Erie aforesaid, from the first day aforesaid, in the year aforesaid, until the thirtieth day of March, in the same year
6 aforesaid, languish and languishing did live, and on the said thirtieth day of March, in the year aforesaid, the said Matilda Ziegler, otherwise called Matilda Hort, at the City of Buffalo, and County of Erie aforesaid, of the said mortal wounds did die. So, the grand jury aforesaid, on their oaths aforesaid, do say that the said William Kemmler, otherwise called John Hort, her the said Matilda Ziegler, otherwise called Matilda Hort, in the manner and form and by the means aforesaid, at the City of Buffalo, in the County of Erie,
7 aforesaid, on the day and in the year aforesaid, willfully, feloniously and with a deliberate and premeditated design, to effect the death of her the said Matilda Ziegler, otherwise called Matilda Hort, did kill and murder against the form of the Statute in such case made and provided and against the peace of the People of the State of New York and their dignity.

GEORGE T. QUINBY,

District Attorney of Erie County.

[ENDORSED.] 8

COURT OF OYER AND TERMINER, IN AND FOR ERIE COUNTY.

APRIL TERM, 1889.

THE PEOPLE AGAINST WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT. 9

INDICTMENT FOR MURDER, FIRST DEGREE.

GEORGE T. QUINBY, District Attorney.

A TRUE BILL.

FREDERICK RICKERT, Foreman. 10

Arraigned the 8th day of April, 1889. Plead not guilty. Counsel, Charles Hatch. Filed the 8th day of April, 1889.

F. S. EWELL,

Special Deputy Clerk.

May 14th, 1889. 11

Defendant being asked if he had cause to show why sentence should not be pronounced, answered, No, whereupon he was sentenced to suffer the punishment of death, to be inflicted by the application of electricity as provided by law, within the walls of Auburn State Prison, in the enclosure thereof and within the week commencing on Monday, June 24th, A. D. 1889.

12 Names of Witnesses before Grand Jury:

Charles H. Spang,
Thomas Martin,
Dennis McMahon,
Thomas McMahon,
Frederick Tripner,
Henry Kemmler,
John DeBella,
John R. Kenney,
John O'Neill,
Daniel E. Barry,
Dr. H. H. Bingham,
E. S. Reed,
Nellie Roberts,
Asa D. King,
Robert E. Kinney,
D. E. Blackmon,
Thomas Corlett,
Hugh McKenney.

13 May 6, 7, 8, 9, 1889. Case tried May 10th, 1889.

Verdict, guilty of murder in the first degree.

At a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, in and for the County of Erie, on the 8th day of April, 1889. 14

Present—HON. HENRY A. CHILDS, Justice Presiding.

THE PEOPLE,
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.
} **Murder, First Degree.**

15 Defendant arraigned and pleads not guilty.

A copy minutes of Plea.

CHARLES H. AVERY,
Deputy Clerk.

At a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, in and for the County of Erie, on the 6th day of May, 1889. 16

Present—Hon. Henry A. Childs, Justice Presiding.

THE PEOPLE,
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

Geo. T. Quinby,
District Attorney,
A. J. Emery.
Murder, First Degree.
Charles Hatch, 17
Charles W. Sickmon,
of Counsel.

JURY.

Frank Guenin,
Frederick Lansell,
George Meyer,
Daniel Chadderdon,
C. J. Swyers,
William H. Henshaw,
Jacob Nehrbass,
Hiram Darling,
Jerome Brown,
Hiram Emerson,
August Melins,
John Thuman. 18

Adjourned to May 7, 1889, 9.30 A. M.

May 7, 1889, 9.30 A. M., trial continued.

PEOPLE'S WITNESSES.

William J. White,
Charles S. Jones, M. D.,
Roswell F. Park, M. D.
John Kenney,
Thomas G. Corlett,
Asa D. King,
Mary Reed,
Henry H. Bingham, M.D.
Nettie Roberts,
John O'Neil,
Delevan E. Blackman,
Robert E. Kinne,
Hugh McKenna, 19
John Devolla,
Dennis McMahon,
Thomas McMahon,

Ordered, that Thomas F. Dywer, physician to Erie County jail, examine the condition of C. W. Swyers, a juror empanelled to try this case; and that the Sheriff of Erie County furnish such prescription as the

20 physician may in his judgment deem necessary, and that the Clerk furnish the Sheriff with a certified copy of this order.

Adjourned to May 8, 1889, 9.30 A. M.

May 8, 1889, 9.30 A. M., trial continued.

DEFENDANT'S WITNESSES.

Charles H. Spang,
William Kemmler,
21 Thomas M. Carpenter,
Thomas Martin,
James Moroney,
De D. Joy,
William J. Collins,
George Meyer,
Paul Marshall,
Eugene Gallagher,
Michael O'Laughlin,
Martin Shay,
Jacob Burkhardt,
Patrick Quinn,
Richard Collins.

PLAINTIFF'S WITNESSES.

Mary Reed, re-called,
William Riley,
22 Melvin Carpenter,
Charles Richardson,
W. C. Townsend,
Charles D. Rogers,
A. E. Makely,
John Gale.

Adjourned to May 9, 1889, 9.30 A. M.

May 9, 1889, 9.30 A. M., trial continued.

DEFENDANT'S WITNESSES.

John Kehoe,
John Burkhardt,
T. M. Crothers, M. D.

23

PEOPLE'S WITNESSES.

William C. Phelps, M. D.,
William H. Slacer, M. D.

Evidence closed, counsel sum up; Court charge the jury, who retire in custody of two sworn officers to deliberate upon their verdict.

Adjourned to May 10, 1889, 9.30 A. M.

May 10, 1889, 9.30 A. M., trial continued. 24

Jury come into Court and say they have not agreed and ask for further instructions from the Court, and after receiving them, again retire for further deliberation, and come again into Court and say they find the defendant guilty of murder in the first degree, as charged in the indictment. At request of defendant's attorney, the jury polled, and each juror answering to his name, says he finds the defendant guilty of murder in the first degree, as charged in the indictment. 25

A copy minutes of trial.

CHARLES H. AVERY,
Deputy Clerk.

At a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, in and for the County of Erie, on the 14th day of May, 1889. 26

Present—Hon. HENRY A. CHILDS, Justice Presiding.

THE PEOPLE,
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

Convicted of Murder, First Degree. 27

District Attorney, George T. Quinby, moves sentence upon defendant.

Defendant being asked if he had any legal cause to show why judgment should not now be pronounced against him, saith, No.

28 The sentence of the Court is that, within the week commencing on Monday, the 24th day of June, one thousand eight hundred and eighty-nine, and within the walls of Auburn State Prison, or within the yard or enclosure adjoining thereto, the defendant suffer the punishment of death, to be inflicted by the application of electricity, as provided by the Code of Criminal Procedure of the State of New York, and that in the meantime the defendant be removed to, 29 and until the infliction of such punishment, be kept in solitary confinement in said Auburn State Prison.

Copy minutes of judgment.

CHARLES H. AVERY,

Deputy Clerk.

30

[ENDORSED.]

COURT OF OYER AND TERMINER,

ERIE COUNTY.

31

THE PEOPLE vs. WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

JUDGMENT ROLL.

COURT OF OYER AND TERMINER, COUNTY OF ERIE.

THE PEOPLE OF THE STATE OF NEW YORK,

AGAINST

WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

To the County Clerk and District Attorney of Erie County:

Sirs: Please to take notice that the defendant, William Kemmler, otherwise called John Hort herein, hereby appeals to the Court of Appeals, from the conviction of murder in the first degree, rendered against him in this Court on the 10th day of May, 1889, and from the whole thereof.

DATED, this 6th day of June, 1889.

Yours, etc.,

CHARLES S. HATCH,
Attorney for Defendant,
No. 36 Niagara street, Buffalo, N. Y.

[ENDORSED.]

COURT OF OYER AND TERMINER, COUNTY OF ERIE.

THE PEOPLE VERSUS WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.

NOTICE OF APPEAL.

CHARLES S. HATCH,
Attorney for Defendant,
Office and P. O. address, 36 Niagara street, Buffalo, N. Y.

To GEORGE T. QUINBY, ESQ.,
Erie County Clerk's Office.

FILED, June 7th, 1889.

COURT OF OYER AND TERMINER, ERIE COUNTY. 32

THE PEOPLE
AGAINST
WILLIAM KEMMLER, ALIAS JOHN HORT.

Tried at Buffalo, N. Y., beginning May 6th, 1889, before Hon. HENRY A. CHILDS and a jury. 33

Appearances:

For the Plaintiff: District Attorney, GEORGE T. QUINBY.

For the Defendant: Messrs. CHARLES S. HATCH and CHARLES SICKMON.

THE COURT: District Attorney, have you any business for the Court? 34

Mr. QUINBY: If the Court please, I move the case of The People vs. William Kemmler.

THE COURT: Clerk, you may take a jury in the case, and each juror, I suppose, may be regarded as challenged when drawn.

PROCEEDINGS MAY 7TH. 35

(The District Attorney stated his case to the jury).

WILLIAM J. WHITE, sworn for the people:

Direct examination by Mr. Quinby:

Q. Mr. White, where do you live?
A. In the city of Buffalo.

36 Q. What is your business?

A. Civil engineer.

Q. How long have you been a civil engineer?

A. About six years.

Q. Did you make this map?

A. I did, sir.

Q. When did you go down to the premises first for the purpose of taking your measurements?

A. On March 29th, '89.

Q. At the right of your map, facing it, what does 37 it represent?

A. It represents the premises 526 South Division street and the adjoining buildings shown in sections, parts of it.

Q. South Division street runs in what direction?

A. Nearly east and west.

Q. These premises in question are situate upon which side of South Division street?

A. North side.

38 Q. The house in front is made of what material?

A. Wood.

Q. And of how many stories?

A. Two; a portion of it.

Q. Running back to the portion in the rear, of how many stories?

A. One.

Q. It fronts upon South Division street?

A. Yes, sir.

Q. At the lower portion of the map, we have a 39 colored—the colored portion at the bottom of the map represents what?

A. Sidewalk on South Division street.

Q. From the sidewalk running towards the house marked "Ried" is also a sidewalk?

A. Yes, sir.

Q. Running to the west and around the house in color is what?

A. Sidewalk.

Q. Of board, or what? 40

A. Plank; boards; yes.

Q. At the right of the map we find a yellow line; what does that represent?

A. Shows the adjoining house to the east.

Q. What is the distance between the house marked "Ried" and the house at the west; let me ask you first what is the scale of this map?

A. That portion is four feet to one inch.

Q. What is the distance between the Ried house and the house at the west? 41

A. Nine feet and seven inches.

Q. I see marked here what appears to be a break in the colored lines of the house at the west; what do they represent?

A. Windows.

Q. The front portion are premises occupied, as you understood it at the time, by a family by the name of Ried?

A. Yes, sir.

Q. The Ried portion, as you understood it, was marked with these yellow diagonal lines on the map? 42

A. Yes, sir.

Q. The front portion of the house is one room, or did you not make any—

A. I did not make any measurements of that.

Q. At the right of this map, in colored lines, is what?

A. Represents a porch or veranda.

Q. What is its width and length?

A. Six foot three, in width. Twenty-one feet and a half in length, I think it is;—it is twenty-two two. 43

Q. The premises marked "A," the portions of the premises marked A, B, C and D on the map, you understood to be those occupied by Hort, the defendant?

A. Yes, sir.

Q. The room marked "A," did it have a doorway entering into the room marked kitchen, immediately beneath?

44 A. Yes, sir.

Q. And which way did that door swing?

A. It swung into Kemmler's apartments.

Q. On this morning of the 29th, did you find these locked or closed—or unlocked?

A. Closed.

Q. Locked?

A. I can't say as to being locked.

Q. What is the dimension of the room marked "A"?

45 A. 13–11 by 11 foot 8 and a quarter.

Q. Is there any window in the room marked "A" looking out upon the porch?

A. Yes, sir.

Q. What is the dimension of that window, and is it as indicated upon the map?

A. Yes, sir.

Q. What is the dimension of that window?

A. The opening is 2 foot 4 inches; a double sash window, I suppose five feet high.

46 Q. Is there also a door entering out upon the porch from room "A"?

A. Yes, sir.

Q. What was its width?

A. Two foot, five and a half inches opening.

Q. That is indicated upon the other yellowish line?

A. By the break.

Q. It is not yellow; what do you call it?

A. This is the doorway.

47 Q. This is the doorway in the center of the room—the break there?

A. Yes, sir.

Q. Upon the other side of the room "A," do you find any window looking out upon the portion occupied by a barn?

A. Yes, sir.

Q. Is it indicated at the point in the break of the yellow line?

A. Yes, sir. 48

Q. How far from the ground is that window?

A. Four foot.

Q. What are its dimensions?

A. Opening is two foot two wide; ordinary height —five feet.

Q. Did you notice on this morning in question whether or not any pane of glass was broken in that window, or did you not take any notice of it?

A. No, sir, I did not.

Q. Is there more than one window from "A" looking out upon the yard? 49

A. To the west?

Q. Yes, to the west?

A. No, sir.

Q. A doorway?

A. No, sir.

Q. The room marked "B" upon the map; give us its dimensions?

A. Seven foot two, by eight foot seven and one-half. 50

Q. A doorway entering into that room from room "A"?

A. Yes, sir.

Q. A doorway also from "A" entering into "C," as indicated upon the map?

A. Yes, sir.

Q. What are the dimensions of "C"?

A. Thirteen feet and one-half inch, and ten foot six.

Q. A doorway from "C" to "D"?

A. Yes, sir. 51

Q. And what are the dimensions of "D"?

A. Seven foot two by eight foot one.

Q. There is a doorway from "C" out on the westerly portion of the house?

A. Yes, sir.

Q. And how many windows?

A. One.

52 Q. A step?

A. Yes, sir.

Q. Up to this doorway?

A. Yes, sir.

Q. How many steps up?

A. Two steps.

Q. And a window, also, you say?

A. Yes, sir.

Q. At the west of this house and at the left of this map, facing it, you seem to have some brown marks
53 or lines; what does that indicate?

A. A sidewalk and sort of platform.

Q. The platform as indicated here is immediately opposite to the window of room "A."?

A. Yes, sir.

Q. There is a barn upon these premises, as indicated upon the map?

A. Yes, sir.

Q. Did you take the dimensions of that barn?

A. I did, sir.

54 Q. What are the dimensions?

A. The one to the west?

Q. I mean on the premises in question, please?

A. Eighteen feet by fourteen three.

Q. In front of the barn you have an indication here of some lines; what is that, a platform?

A. Plank approach.

Q. Is there a rise to it as you come into the barn?

A. Yes, sir.

55 Q. I see you have indicated there what appears to represent a wagon, was there a wagon there at the time that you made this survey?

A. Yes, sir.

Q. What kind of a wagon was it?

A. It was a covered wagon.

Q. A four-wheeled wagon?

A. Yes, sir.

Q. Covered, how was it covered?

A. Leather cover. 56

Q. Leather cover over it?

A. Yes, sir.

Q. A wagon for a single horse?

A. Yes, sir.

Q. What is this at the west of the wagon, indicated?

A. Two boxes and three barrels.

Q. And here?

A. The boxes sat side of the wagon.

Q. Tell me the distance from the door-way of the barn to the window of room "A," looking out upon 57 the west?

A. Thirty feet.

Q. Tell me the distance from the centre of the wagon to the window of room "A"?

A. Centre of the side of it?

Q. Yes, sir.

A. Twenty-one feet.

Q. Is there a fence in front of these premises?

A. Yes, sir. 58

Q. Marked by the yellow line at the bottom of the map?

A. Yes, sir.

Q. Tell me the distance if you can from the street line, the fence line to the rear portion of these premises, say the door-way of "C"—about how far back is it?

A. About ninety-six feet.

Q. At the east and at the right of this map, I see a yellow square, bottom of the stoop; what is that?

A. Appeared to be an entrance to a sewer where they deposited. 59

Q. Goes down into the ground?

A. Yes, sir.

Q. At the left of your map, you have a representation of what?

A. Of the Kemmler premises.

Q. The inside of these rooms A, B, C, and D?

A. Yes, sir.

60 Q. And the stoop?

A. Portion of the stoop.

Q. At the east of the house, the scale of this map is what?

A. One foot to one inch.

Q. What time did you say in the day you got down there on the morning of the 29th?

A. In the afternoon at four o'clock.

Q. Do you recall who was in charge of these premises at the time? 61

A. There was an officer, I do not know his name.

Q. Who went with you—officer O'Neill, that gentleman sitting there?

A. He did not go with us.

Q. Did you meet officer O'Neill down there?

A. Yes, sir.

Q. That gentleman sitting there?

A. Yes, sir.

Q. Which way did you go into the house, at the door facing the west or the door here entering room "A"? 62

A. The door entering room "A".

Q. You got up onto this stoop and went into room "A" first?

A. Yes, sir.

Q. At the bottom of the map and at the right, what are these round figures represented here?

A. The larger one represents a barrel, the central one at the bottom, a peach-basket, the upper one in the centre, a pail, and the one at the left, or at the 63 west, a bushel basket.

Q. The break in this yellow line at the bottom of the map represents what?

A. A door leading into Reid's apartments.

Q. Which is represented upon the other map as you have described it?

A. Yes, sir.

Q. Up against this door were these baskets and barrels?

A. Yes, sir. 64

Q. At the bottom of the map and at this left hand corner, what is the brown indication—what does it represent?

A. A closet; pantry closet.

Q. What is its width? How far out from the wall does it come?

A. It is a permanent part of the building.

Q. It comes out in some way, out from the wall?

A. One foot seven and three-quarters inches.

Q. China closet, and extends up how far towards the ceiling? 65

A. To the ceiling.

Q. It is built in the room?

A. Yes, sir.

Q. At the left of the map marked "wash-stand," is what—what is that?

A. Two boxes; one piled on top of another.

Q. How high were they?

A. About two feet.

Q. What kind of boxes were they, should you judge? 66

A. They were two crates.

Q. Open?

A. Yes, sir.

Q. What does this represent immediately at the right of the wash-stand?

A. An arm-chair; rocking-chair.

Q. Was it broken?

A. One rocker was broken, as represented.

Q. Immediately to the right of that, in the bluish color, what was that? 67

A. A stove.

Q. What was the size of that stove?

A. One foot nine wide, by three foot and a quarter over all.

Q. The hearth of the stove was towards the room marked "C"?

A. Yes, sir.

68 Q. What is indicated between—as marked on the map—wash-stand and sewing machine?

A. A chair.

Q. Standing up nearly against the wall?

A. Yes, sir.

Q. And above that, a sewing machine?

A. Yes, sir.

Q. What was its height?

A. Two foot four inches high.

Q. What was the distance from the floor to the sill 69 of the window, looking out upon the west, in room "A"?

A. Two foot ten inches.

Q. What is this indicated at the right of the sewing machine?

A. A trunk-tray, on a chair.

Q. What kind of a trunk?

A. It was the tray taken out of a trunk. I do not know what kind of a trunk it was taken from.

Q. The upper portion of the trunk?

70 A. Yes, sir.

Q. Did you notice what was in it?

A. Yes, sir.

Q. What was it—ladies' wearing apparel?

A. Principally.

Q. Did you notice whether the trunk was in the room, or not?

A. It was not.

Q. What do the red spots near the side of and at its right, indicate?

71 A. The principal blood stains.

Q. You found upon the floor?

A. Yes, sir.

Q. Were any stains of blood upon the stove?

A. Yes, sir.

Q. What portion of the stove?

A. Front right hand corner, as we are standing, on the hearth.

Q. The larger blood stains near it, upon the floor?

A. Yes, sir. 72

Q. What was its dimensions?

A. I have not them.

Q. Tell us as near as you recall it, if you did not measure it.

A. Nine inches in diameter.

Q. What was the appearance of the blood, or did you not notice, as to being fresh or otherwise?

A. A portion of it was dry and the rest was still wet.

Q. At the right of the blood spot, you found a chair, as indicated upon the map? 73

A. Yes, sir.

Q. At the top of the map is a red spot, what does that indicate?

A. A blood stain.

Q. Upon the floor or otherwise?

A. On the floor principally.

Q. And near it was what at the right?

A. A child's rocking-chair.

Q. Did you notice whether or not there were any blood spots upon the wall or wood-work of the room "A"? 74

A. There was one upon the wall, prominent one.

Q. How far up from the floor?

A. About five feet.

Q. Which side, what portion of the wall?

A. Almost directly over the child's chair.

Q. A papered wall?

A. Yes, sir.

Q. And that was—describe it to the jury? 75

A. On wall six and one-half inches from each side, five marks and blot at the height of commencement of chimney.

Q. Five blood spots?

A. Yes, sir.

Q. What was its appearance?

A. As placed—as caused by the hand being placed against the wall.

76 Q. What did you say? I was interrupted.

A. As caused by placing the hand on the wall.

Q. What we call finger marks?

A. Yes, sir.

Q. What other blood spots if any did you find in the room other than you have spoken of?

A. There was stains on many of the dishes that were on the floor; on, in fact, all of them, I think.

Q. Did you find any dishes upon the floor?

A. Yes, sir.

77 Q. Wooden, earthen ware, or what?

A. Earthen-ware.

Q. Did you find a table there?

A. One end of the table was resting on the floor.

Q. How?

A. One end of the table was resting on the floor.

Q. Is that indicated on your map?

A. No, sir.

Q. Why did you not put it on?

A. It conflicted with so much else.

78 Q Was the table standing or turned over?

A. Turned over, sir.

Q. Indicate upon the map, sir, if you please, where this turned over table was; put a mark with your pencil?

(Witness indicates.)

Q. If that table was turned over, how could those barrels and things be there?

A. It was laying on them.

79 Q. This at the right of the map represents the doorway entering into "B"?

A. Yes, sir.

Q. What, if anything, did you find in room "B"?

A. All that that the room "B" contained.

Q. Oh, just generally? A bed?

A. A bed.

Q. What other furniture besides a bed?

A. No further besides the bed. Some two or three baskets; lady's shoe. 80

Q. Any female apparel?

A. Hanging, yes sir.

Q. Hanging where?

A. Behind the door.

Q. At the top of room "A" with the dotted black line in "C" represents the door-way?

A. Yes, sir.

Q. The swinging of the door?

A. Yes, sir. 81

Q. What generally was in this room?

A. A wardrobe.

Q. As indicated upon the map?

A. Yes, sir. A small sized rocking-chair, a wash boiler and a bushel basket.

Q. As indicated?

A. Yes, sir.

Q. What were the dimensions of "C"; we have had that over there. This at the right of "C" represents the door-way with the dotted line entering into "D." 82

A. Yes, sir.

Q. What generally did you find in that room?

A. A bed; a child's—a doll's bed.

Q. The bed is indicated upon the top of the map in "D"?

A. Yes, sir.

Q. What does this represent, the dotted line at the top and left of "C"?

A. Outer door leading to the west; outside door leading to the west. 83

Q. That is the same as indicated here upon the other map at the top of "C"?

A. Yes, sir.

Q. What are the dimensions of that door-way?

A. Two foot five and a half, clear.

84 Q. The ways of ingress and egress into these four rooms is the door-way upon the east, by the stoop in "A," entering into "A," and the door-way upon the west as indicated in room "C"?

A. Yes, sir.

Q. And this all entering out?

A. Yes, sir.

Q. Is this map that you have made a correct map as you saw the premises on the day in question?

A. Yes, sir.

85 Mr. Quinby: Consider the map exhibited to the jury.

The Court: Yes.

CHARLES S. JONES, M. D., sworn for the people.

Direct examination by Mr. Quinby:

Q. Doctor, where do you live?

86 A. Fitch Accident Hospital.

Q. You are practicing physician and surgeon?

A. Yes, sir.

Q. How long have you been a physician and surgeon?

A. Since a year ago last February. I think it was the 28th of February.

Q. You are a graduate of what institution?

A. University of Buffalo, Medical Department.

87 Q. Did you see Matilda Ziegler in her life time?

A. Yes, sir.

Q. Or otherwise called Matilda Hort?

A. Yes, sir.

Q. Where first?

A. At the entrance to the Fitch Accident Hospital.

Q. The Fitch Accident Hospital is located where?

A. Corner of Swan and Michigan streets.

Q. What is that hospital; what are its objects?

A. It is an accident hospital for the care of cases to which the staff may be called. 88

Q. Were you in any way, at the time in question, any way connected with this institution, if so, what?

A. I was; as house surgeon.

Q. What were your duties?

A. To carry out the instructions of the attending surgeon and attending physician.

Q. Who was at that time the attending surgeon?

A. Dr. E. S. Norton.

Q. And Dr. Park? 89

A. Dr. Park is consulting physician.

Q. What time; what was the day of the month, did you say?

A. The 29th of March.

Q. Last?

A. Yes, sir.

Q. What time in that day—about?

A. That I saw the patient?

Q. That is what I ask you? 90

A. About nine o'clock in the morning.

Q. How was the patient brought there?

A. In the Fitch ambulance.

Q. Who was in charge of the ambulance, or who came with it besides the patient?

A. Ambulance surgeon Corlett.

Q. Corlett is a student there at the hospital?

A. Yes, sir.

Q. Who was the ambulance surgeon?

A. In rank, Dr. Goler.

Q. Any other person came there that you recall—an officer? 91

A. I do not remember that there was an officer.

Q. Do not recall that?

A. No.

Q. What was done with the patient?

A. Taken into the surgery of the hospital.

Q. Placed where?

92 A. On the operating table.

Q. Who made the examination?

A. I made the first examination.

Q. Tell what you discovered or observed?

A. I observed that the patient was covered with blood to quite an extent, and wounds about the head.

Q. Where; you say she was covered with blood to some extent?

A. About the face and head and her garments.

93 Q. What garments did she have on, so far as you observed?

A. She had on a dress; I do not know that I recall the exact nature of the garments, I think a dark waist.

Q. A hat?

A. I think not; no, sir.

Q. Was there blood upon the dress or waist?

A. Yes, sir.

Q. Was the woman conscious or unconscious?

A. Apparently unconscious.

94 Q. What should you judge her age to have been?

A. I should judge about thirty.

Q. What was her complexion?

A. Dark, as I recall it.

Q. How?

A. Her face was stained with blood; I think her complexion was dark.

Q. Her hair?

A. Dark hair.

95 Q. Did you notice whether she was a well-nourished woman, or not?

A. I think she was.

Q. Did you notice whether she had any blood upon her hands or not?

A. She had.

Q. Upon both hands?

A. She had.

Q. Now, tell the jury fully, in your own way, the examination that you made and what you found? 96

A. I first noticed there were wounds on the head, underneath the hair; began cutting away the hair to find the extent of the wounds; found they were various—wounds over various parts of the head; we then had the head shaved, the hair from the entire head was shaved.

Q. How many wounds did you discover?

A. Counted twenty-six.

Q. Were they incised wounds; a cutting wound; any of them? 97

A. There were wounds through the scalp.

Q. As made by a sharp or a blunt instrument?

A. Yes, sir.

Q. Which?

A. I do not think I could say which.

Q. You did not notice particularly?

A. I noticed the wounds.

Q. Who assisted you in this examination, if any one, at this time? 98

A. Mr. Corlett was there.

Q. What else did you discover?

A. Underneath the scalp I discovered a fracture of the skull.

Q. Indicate upon your own head, if you please, where the fracture was, and then describe it?

A. On the left—I think it was the left side of the skull somewhere slightly in front of the ear, running up towards the top of the head. 99

Q. About what was the length of this fracture?

A. At that time I was unable to say.

Q. Did you ever find out?

A. Yes, sir.

Q. Tell the jury?

A. Something like three inches by two, I should say, or slightly more than two.

Q. What other fracture, if any, did you find?

100 A. The fracture—I did not find any other at that time.

Q. Did you subsequently, and, if so, when?

The Court: What do you mean by a three by two inch fracture; do you mean there was a portion of the skull depressed to that extent—that surface?

A. When the pieces were removed there was a cavity to that extent; an irregular cavity.

101 Mr. Quinby: We will get at that in a moment, your Honor.

Mr. Quinby (resuming):

Q. Did you find any other fracture?

A. I beg pardon; at that time?

Q. At any time, and, if so, when?

A. At the coroner's examination.

102 Q. Well, we will not go to that. Now, describe fully to the jury this fracture that you discovered?

A. Before calling Dr. Park I simply found, by pressing against the skull, that there was a fracture; easily depressed the bone; I examined no further.

Q. Were you there when Dr. Park performed the operation?

A. I was.

Q. You saw it?

A. Yes, sir.

103 Q. Describe the operation of Dr. Park and what he took from the head, if anything?

A. He connected a few of the wounds over the fracture and opened the flaps thus made and found pieces of skull underneath, which he removed.

Q. How many pieces did he remove, do you know?

A. We counted, I think, seventeen.

Q. Was there any portion of the brain coming through these fractures?

A. Yes, sir. 104

Q. In how many places?

A. At one.

Q. One place; have you those bones with you?

A. Yes, sir.

Q. Produce them.

(Witness produces box.)

Q. These are the bones? 105

A. Yes, sir.

Q. Was this skull of this woman a normal skull?

A. So far as I know.

Q. As to thickness?

A. So far as I know; yes, sir.

Q. After taking out these pieces of bones—you may state whether or not these pieces of bone were resting—any of them—upon the brain proper?

A. They were.

Q. What was the object of the operation? 106

Mr. Sickmon: I object.

Q. Why were these bones removed, if you know, as a doctor and physician.

The Court: Yes, if he knows why the bones were removed, he may tell.

Mr. Sickmon: Give us an exception. 107

A. Dr. Park was called, I think he will give the reasons.

Q. Just answer my question, if you please?

The Court: Do you expect to call Dr. Park?

Mr. Quinby: Yes, sir, if we can find him.

108 Q. Why did you remove these bones, why were they removed, if you know, as a physician?

Mr. Sickmon: I do not understand that this witness removed them.

The Court: If he assisted in the operation and was present at it, understands the purpose of removing the bone, he may state it, otherwise not.

109 A. I did not ask Dr. Park why he removed them.

Mr. Quinby: The doctor is here, so I will not bother with that.

Q. Where were any other wounds on the skull, on the head, the skull, that you saw at this time?
A. Of the skull?
Q. Of the skull proper; any fracture of the skull?
A. There was a fracture, Dr. Park said, extending around the front of the—
110 Q. Did you notice any wounds upon the body of the woman, yourself?
A. Yes, sir.
Q. Describe them and their location.
A. Saw a few wounds, some three or four wounds, I think, of the hand—of the right hand.
Q. What were they?
A. They were incised, lacerated wounds.
Q. Incised—cutting wounds, lacerated wounds?
A. Yes, sir.
111 Q. What else; any upon the arms or body?
A. I do dot recall any wounds upon the body.
Q. Did you attend the woman until the time of her death?
A. As house-surgeon; yes, sir.
Q. Did she regain consciousness at any time?
A. She did not.
Q. When did she die?

A. At 12.50 the following night. 112

Q. That would be 12.50 Saturday morning, March 30th?

A. Yes, sir.

Cross-examination by Mr. Sickmon:

Q. Did you wash the blood from her face?

A. At first?

Q. At any time. 113

A. Yes, sir.

Q. How large a woman was she—what was her weight?

A. I do not know.

Q. Well, about; give us your judgment on it.

A. Average size woman; perhaps one hundred and thirty pounds.

Q. A hundred and thirty?

A. I do not know definitely.

Q. Were there any other wounds that you discovered except those that you have stated? 114

A. I think not.

Q. How many cuts were there upon her hand—her right hand?

A. Three or four, I think, of cuts and bruises.

Q. Where were the most of these cuts that occurred upon her head?

A. One in the thumb, was the principal one, I think.

Q. I am talking about the cuts that occurred upon her head. 115

A. Oh, I beg pardon.

Q. Where were those—all upon the top of her head?

A. On all sides of the head were cuts; they were pretty well distributed.

Q. And twenty-six of those, you say, you counted?

A. Counted; yes, sir.

116 Q. Were they incised wounds, could you tell the instrument, from your examination—with what instrument they were made?

A. I think not.

Q. Whether it was sharp or a blunt instrument?

A. I won't—I do not think you could, absolutely.

Q. Could you tell whether they were all made with the same instrument, or not?

A. They were similar in character.

Q. What kind of a looking woman was she; good 117 looking, or otherwise?

A. I do not know that I quite understand you.

Q. I say, would you call her a good looking woman, or otherwise?

A. An average looking woman.

Q. Her features were regular?

A. Yes, sir.

Q. Was she good form?

A. So far as I observed.

Q. And with the exception of the blood which 118 appeared upon her clothing, was she tastily dressed?

A. In a working dress, I should say.

Q. They brought her in the clothes in which she was found?

A. Yes, sir.

ROSWELL F. PARK, M. D., affirmed for the people.

Direct examination by Mr. Quinby: 119

Q. You live in Buffalo?

A. Yes, sir.

Q. Practicing physician and surgeon?

A. Yes, sir.

Q. And have been for how many years?

A. Thirteen or fourteen years.

Q. What institutions, if any, are you connected with?

A. The Medical Department of the University of Buffalo, General Hospital, Fitch Hospital. 120

Q. Your specialty is surgery?

A. Yes, sir.

Q. You have had some experience in head wounds, fractures of the skull?

A. Yes, sir.

Q. Tell the jury about how many cases have come under your observation, of fractures and incised ones upon the head; some idea of your experience?

A. Well, I have no idea, sir; I have seen a good many hundred of them. 121

Q. Did you see the woman called Matilda Ziegler or Hort, at the Fitch Hospital, this woman described by the last witness?

A. I did; yes, sir.

Q. When was it that you saw her first, doctor?

A. I think it was March 29th.

Q. About what time of day?

A. About eleven; between eleven and twelve, as nearly as I recollect it. 122

Q. In the day time?

A. Yes, sir.

Q. At the Fitch Hospital?

A. Yes, sir.

Q. Where was she when you first saw her?

A. She was lying on the operating table there.

Q. Who was present at the time?

A. Dr. Jones and the nurse, Mr. Corlett, one of the resident students there; I do not recall who else. I know there was several there. 123

Q, Was the woman conscious or unconscious?

A. No, unconscious.

Q. Describe, doctor, the condition that you found her in, please, as to the injuries upon her person?

A. I found her with a large number of rough scalp wounds, lacerated skull wounds, and of course head covered with blood, more or less; bruises and disfigured.

124 Q. What did you do?

A. I had chloroform given to her and I operated upon her.

Q. Describe the operation and what the result was?

A. Well, there was one point on, I think, the left
side of her head where evidently the skull had been
driven in, or depressed, as we say, and I cut through
the scalp over that part and found several pieces of
bone that were entirely loose, pieces of the skull, and
125 removed them, and I stopped the bleeding and closed
the wound.

Q. What was the object of this?

A. To save her life, if possible.

Q. To remove the pressure from the brain?

A. Yes, sir.

Q. Before this did you discover whether any portion of the brain proper was oozing out?

A. Yes, it was.

Q. What part of the brain was it that oozed?

A. About this portion (indicates), what we call the
126 cerebrum.

Q. Left?

A. Left side, I think.

Q. Left side of the head and nearly above the ear?

A. Yes, sir.

Q. Could you tell from the examination of this wound whether the fracture was made by a sharp or a blunt instrument?

A. I should say by a blunt.

127 Q. Were there any wounds upon the head that indicated them to have been made by a sharp instrument?

A. Nothing that I recall. Everything had the appearance to me of having been done by some blunt instrument; it was not clean cut.

Q. Describe what you mean by blunt instrument, a club?

A. Well, anything that has not a sharp edge or a sharp point.

Q. I present to the witness's attention a hatchet; 128 would you call the face of that hatchet a blunt instrument?

A. No; I should call that rather sharp in the sense that I meant it.

Q. The other portion (indicating hammer part)?

A. That I should call blunt.

Q. Now, I ask you again, after presenting you with this instrument, whether or not these wounds indicated them to have been made by a sharp or a blunt instrument, calling the face of that a sharp instrument? 129

A. I think most of them had the appearance of being made by a blunt instrument.

Q. Well, were there any as having been made by an instrument as sharp as the hatchet presented to you?

A. I do not recall that accurately, sir, now. I paid special attention to the part that needed special operation.

Q. You did not examine carefully—you may state whether or not any of these wounds run in together? 130

A. Yes, sir.

Q. Did you take any notice to count the number of wounds upon the head?

A. I did not.

Q. What other fracture of the skull, if any, did you find other than you have described?

A. Why, this was a complicated fracture; its lines ran in two or three different directions.

Q. And branching out from a common centre?

A. Yes, sir. 131

Q. What was the length of the radiations?

A. I did not follow them clear out, it would have involved too much investigation, more than I thought was proper in the case; what I paid special attention to was to see if the bone was driven below its proper level; that was the most important part first.

Q. Did any of the fractures extend to the frontal bone?

132 A. Yes, sir.

Q. Or front portion of the head?

A. Yes, around in this direction.

Q. Any toward the rear did you notice?

A. I think so; it was a radiating fracture as we should say.

Q. What are the names of the bones of the head that were fractured that you saw?

A. It was mainly in the parietal bone; parietal and temporal bone.

133 Q. Was this a normal skull, Doctor, as to thickness?

A. So far as I saw, yes, sir.

Q. You may state to the jury whether or not this was a serious wound, or not?

A. Very; I regarded it as fatal when I saw it.

Q. How?

A. I regarded it as necessarily fatal when I saw it.

Q. You did what you could for her?

A. Yes, sir.

134 Q. You thought it was a hopeless case when you undertook it?

A. Yes, sir.

Q. Any other wounds upon her person that you noticed?

A. I think her fingers showed some bruises or cuts; they were dressed at the time and I did not see them. There were some bruises about her shoulders if I remember, or rather about the neck here.

Q. Describe the bruises about her neck?

135 A. Well, they were small and did not—

Q. Discolored?

A. Discolored, yes; did not call for any immediate—

Q. It was not a cutting of the flesh?

A. No, I think not.

Q. A discoloration of the throat and breast?

A. Yes, sir.

Q. Upon both sides of the throat?

A. As I remember it.

Q. Of recent date? 136

A. Apparently, fresh.

Q. Any other?

A. I saw no other.

Q. Were the wounds upon the throat and neck as of a character made by the human hand?

A. I could not say about that.

Q. Did they have the appearance that they might have been made so?

A. They were not distinctive of any particular nature.

Q. Did you perform any other operation than the ones you have described? 137

A. That is all.

Q. Did you see her subsequently?

A. No, sir.

Q. She was dead?

A. She died, I understood, that night.

Q. You never saw her again alive?

A. No, sir.

Q. You knew the fact that she did die?

A. I was told so. 138

Q. You were so informed that she did die?

A. Yes, sir.

Q. A blow upon the head, in the locality you have described, by an instrument of this nature (referring to hatchet,) you may state whether or not it would be dangerous to human life?

A. Depend entirely upon the—

Q. To strike a person on the head with an instrument similar to this that I have in my hand in the locality in which you found this injury? 139

A. It certainly is dangerous.

Q. To human life?

A. Yes, sir.

Cross-examination by Mr. Sickmon:

Q. How old a woman did this appear to be, Doctor?

A. I thought between thirty and thirty-five.

140 Q. About what was her height?

A. I should have to guess at it.

Q. Yes, give us your best judgment?

A. About five feet six, I should say.

Q. And her weight?

A. One hundred and thirty, as a guess.

Q. A woman of a comely appearance?

A. Certainly not as I saw her.

Q. Did you see her after she was washed, after the blood was washed from her face?

141 A. Yes, but her features were more or less swollen and discolored.

Q. Aside from that they were regular?

A. I think so.

JOHN R. KENNEY, sworn for the people:

Direct examination by Mr. Quinby:

142 Q. Mr. Kenney, you are coroner of this county?

A. I am.

Q. You had charge of the case of Matilda Ziegler?

A. I did.

Q. Where did you first see her?

A. At the Accident—Fitch Hospital.

Q. What time and on what day?

A. I was called there, over the telephone about ten o'clock on the morning—on Friday morning, the 29th day of March last, to take an ante mortem statement.

Q. You did not take the statement?

143 A. I did not.

Q. Why?

A. She was not in condition; unconscious.

Q. You never took her statement?

A. I never did.

Q. Did you afterwards see her dead body?

A. I did.

Q. Where did you remove it to?

A. To the morgue. 144

Q. Where is the morgue situate?

A. The morgue is situated on the Terrace in the rear of the jail.

Q. Who made the post-mortem examination?

A. Dr. Henry Bingham.

Q. And upon the body of Matilda Ziegler?

A. Yes, sir.

Q. When did he make that examination?

A. On Saturday morning, Saturday forenoon, the 30th of March last. 145

Q. Were you there when the clothing was removed from the body?

A. Well, there was not much clothing on the body; there was nothing but a night dress.

Q. I ask you if you were there when the clothing was removed from the body?

A. Yes, sir.

Q. What clothing if any was removed?

A. A night dress.

Q. After the post-mortem examination the body was buried? 146

A. Yes, sir.

Q. By whom?

A. By Crowley Brothers.

THOMAS G. CORLETT, sworn for the people:

Direct examination by Mr. Quinby:

Q. You live in Buffalo? 147

A. Yes, sir.

Q. You are a son of Judge Corlett?

A. Yes, sir.

Q. Are you admitted yet to practice medicine?

A. No, sir.

Q. You are a student of medicine?

A. Yes, sir.

148 Q. At the Buffalo University?

A. Yes, sir.

Q. Did you see the body of Matilda Ziegler in her life-time?

A. Yes, sir.

Q. Where did you first see her?

A. I saw her at the house on South Division street.

Q. At her house in the rear of 526?

A. Yes, sir.

Q. South Division street?

149 A. Yes, sir.

Q. On what day and the time of day?

A. March 29th, between half past eight and nine o'clock.

Q. Where was she lying?

A. Lying on a bed in a room off the kitchen.

Q. How did you happen to be present and on these premises?

A. I went there with the Fitch ambulance.

Q. You are at the Fitch Hospital, are you not?

150 A. Yes, sir.

Q. As what; in what capacity?

A. I am an assistant there.

Q. You are one of the assistants?

A. Yes, sir.

Q. Here is the room where the stove is?

A. Yes, sir.

Q. Which way did you go in; by the way of the stoop on the—

151 A. On that other map I came down towards the barn there.

Q. You went in by way of the barn in the rear, did you?

A. In the rear door through that room into the kitchen.

Q. Where the stove was, room "A"?

A. Yes, sir, and then into room "B."

Q. And upon the bed you saw her?

A. Yes, sir. 152

Q. About what time in the morning was this?

A. That was between half past eight and nine.

Q. Was she conscious or unconscious?

A. Unconscious.

Q. Who was there?

A. Doctor Blackman.

Q. Where was the body taken?

A. Placed in the ambulance and taken to the hospital.

Q. Did you go up with the body to the hospital? 153

A. Yes, sir.

Q. To the Fitch Hospital?

A. Yes, sir.

Q. Did you see this operation of Dr. Park?

A. Yes, sir.

Q. And the operation was performed upon Matilda Ziegler, the woman that you saw in this room?

A. Yes, sir.

Q. How was she dressed, Mr. Corlett, if you know? 154

A. The only thing I remember, she had on a red jersey and a black skirt, I believe.

Q. A red jersey and a black skirt?

A. Yes, sir.

Q. Describe to the jury what marks of blood, if any, you saw upon her.

A. Her face was—her face and hands were covered with blood, as well as her clothing.

Q. As well as what?

A. The clothing. 155

Q. The clothes?

A. Clothing.

Q. Was there blood upon the dress?

A. Yes, sir.

Q. Whereabouts upon the dress, the skirt?

A. Seemed to be scattered all over, not any particular place that I noticed.

Q. And upon the waist?

156 A. I think so; yes, sir.

Q. What condition was the hair in as to blood?

A. The hair was clotted with blood; covered with blood.

Q. Did you see the body in a nude condition at any time?

A. I do not think I did.

Q. How?

A. The only time is when Crowley Brothers took 157 the body away.

Q. That was after the autopsy?

A. No, sir; that was when they took her from the hospital.

Q. Were you present at the autopsy?

A. No, sir.

Q. She died at the hospital?

A. Yes, sir.

Q. You say you saw the body nude there?

A. Yes, sir.

Q. Did you examine it to see what wounds were 158 upon the body or the limbs?

A. No, sir.

Q. If you did, describe what you saw?

A. There was some wounds on the hand and shoulder; that is all I noticed.

Q. Whereabouts upon the shoulders?

A. Well, I do not remember the exact locality; there was one wound there, a cut.

Q. Did you notice any wounds upon either of the 159 hips?

A. No, sir.

Q. Who removed the body?

A. Crowley Brothers, I believe.

Q. You saw Coroner Kenney there?

A. Yes, sir.

ASA D. KING, sworn for the people: 160

Direct examination by Mr. Quinby:

Q. Mr. King, your name is Asa D. King?

A. Yes, sir.

Q. Where do you live?

A. 34 Cortes street, Boston, Massachusetts.

Q. What is your business in Boston?

A. Book-binder.

Q. How long have you resided in the city of Boston? 161

A. About nine years.

Q. Were you in Buffalo on the 29th day of March last?

A. Yes, sir.

Q. Where were you stopping?

A. 530 South Division street.

Q. With whom?

A. With my father, Earl D. King.

Q. Your father lives there? 162

A. Yes, sir.

Q. Were you born in Buffalo?

A. No, sir; I was not; I was born in Wyoming County.

Q. Did you ever live here?

A. No, sir.

Q. Do you know the premises, 526?

A. Yes, sir.

Q. What did you say your father's first name was? 163

A. Earl D. King.

Q. On this morning of the 29th about what time did you arrive?

A. I came in on the train from Boston that morning.

Q. You came in that morning?

A. Yes, sir.

Q. What time did the train get here?

164 A. Six o'clock.

Q. Came in on the Central or what road?

A. On the Central road.

Q. What time did you get down to your father's?

A. It was about twenty minutes to half-past.

Q. Six o'clock?

A. Six o'clock.

Q. Now, what was the first thing that attracted your attention towards any difficulty in the premises 526?

165 A. Mrs. Reid came into the house and said—

Q. We cannot have what she said. Mrs. Reid came into your father's premises?

A. Yes, sir.

Q. Do you know where Mrs. Reid lives?

A. 526, next door.

Q. That is in the front of the premises in question?

A. Yes, sir.

Q. And yours, 530, is next door?

166 A. Yes, sir.

Q. East or west of the Reid house; east is out, further out; west is this way?

A. It would be east towards Jefferson street.

Q. Yes.

A. It was towards Jefferson street where we live, from this.

Q. Towards Jefferson street eastward. Mrs. Reid said something, then what did you do?

A. I put on my hat.

167 Q. Did she bring anybody with her?

A. Brought her children with her.

Q. Mrs. Reid brought her two children?

A. Yes, sir.

Q. What did you do upon her coming in?

A. I put on my hat and walked out; went around to the back side of the house, 526.

Q. Did you walk in the way, upon the side of the Reid premises where the barn is situated?

A. No, sir; on the opposite side. 168

Q. Where the stoop is?

A. Yes, sir.

Q. You came onto these premises here; did you go into the front gate?

A. Yes, sir.

Q. Down the walk, as indicated upon the map?

A. Yes, sir.

Q. Then around at the right?

A. Yes, sir.

Q. Back here? 169

A. Yes, sir; into the second door.

Q. Into the second door; now, when you got there, commence there and tell what you saw and what you did.

A. I opened the door and saw a person lying there on hands and knees, or knees and arms, swaying backwards and forwards, blood all over their head and hair, down on the floor.

Q. Hair long or short?

A. Long; a pool of blood laying right by the left hand side: I shut the door. 170

Q. Any noise; did you hear any noise?

A. No, sir; I did not hear any noise. I shut the door, stepped back onto the steps.

Q. Onto the stoop?

A. Yes, sir: back onto the stoop that steps down onto the—

Q. Back on these steps here?

A. Yes, sir: I then turned around again and opened the door the second time; facing me stood a man. 171

Q. Stood Kemmler?

MR. QUINBY (to Kemmler). Hold up your head, please. That man?

A. Yes, sir.

172 Q. What was his—

A. He was wiping his hands with something, I couldn't tell what; the door did not open only about two-thirds of the way—seemed to be something back of it. I looked at him and at the person lying down there and I said to him: "This is brutal, man; let's go for the doctor." I stepped back from the door-way and he stepped right out onto the sill of the door; partially over the arm of the woman, or person that laid on the floor, on the knees—on the elbows; came out 173 and shut the door; walked past me onto the walk, and out onto the street, off South Division street; down South Division street, I should think four or five rods, crossed diagonally to the other side; I asked him once or twice to go for the doctor; he made no reply, but looked at me every time I spoke until we got to the corner of South Division and Jefferson street; there he turned, opened a door, a saloon.

Q. Do you know whose saloon?

174 A. I do not; no, sir; I asked him if he was going in there and he said "Yes;" I said "Let's go for the doctor;" he says "No, I won't." Passed into the saloon, walked up to the bar, asked for a glass of beer; I says to the bartender, "Do not give this man anything to drink. He has brained his wife and she lays wallowing in her own blood." The bartender refused.

Q. What did he say, if anything?

A. He said nothing just then until the bartender refused; and as the barkeeper stepped back towards me he says "Yes, I have, and I am willing to take the 175 rope for it; the sooner the better." I then said "I want this man to go for the doctor," and someone said —sitting there—said he would go. The boy got up and left, and I stepped back out onto South Division street, out of the door, towards the corner of Jefferson, right on the corner; the next I saw was, he stepped out, the defendant, this man, stepped out onto the Jefferson street side, back door; he walked down Jeff-

erson street; I followed right along behind him till I 176
overtook him, walking a little faster, and I overtook him about half way between the two streets, between South Division and Swan; I asked him again to go for the doctor; he made no reply. After reaching the corner of Swan street, I says "Does the doctor live down here?" He then turns and says "Let me get a glass of beer and I will go for the doctor." I says "All right." He stepped into the third door on Swan towards the city, from Jefferson; I remained on the outside; he stepped up to the bar, asked for something; 177
got something; raised it to his mouth and drank, took out a sack from his pocket, took out something from that, put it onto the counter, closed it up, put it into his pocket; walked out to where I stood; there is a window; large window, in the door. I stood where I could see right onto it. After coming out of there, we both started for Jefferson street corner. I asked him again if he would go for the doctor, and he says "No, I won't." He turned to his left on Jefferson street and 178
I crossed right over to a drug store on the opposite corner, on Jefferson and Swan, and asked for a doctor, or where a doctor lived. They told me that Doctor—

Q. Never mind that; that is not proper; you got some information about a doctor?

A. Yes, sir.

Q. Then what did you do?

A. I stepped back out and some boy says there "Do you want an officer?" I says "Yes;" he says, "There is one;" the officer came up and I entered 179
complaint, and then went down Swan street to the doctor's.

Q. Where was the defendant when you saw the officer?

A. He was just entering; just passed into the saloon on the corner of South Division and Jefferson streets.

Q. What officer was it?

A. I do not know the man, sir.

180 Q. Do you know him?

A. I did not know him at that time; I think I could recognize the man now.

Q. Was it Officer O'Neill?

MR. QUINBY (addressing Officer O'Neill): Stand up, O'Neill.

A. Yes, sir; that was the gentleman.

Q. What did you do then; did you go for the doctor?

181 A. I did; found the doctor not at home; passed down Swan to Spring street, there I was told by—

MR. SICKMON—Never mind.

Q. Never mind that; did you succeed in finding any doctor?

A. I did not; no, sir.

Q. What did you do then?

A. I passed up Spring street to South Division;
182 down South Division to my home, and as I got opposite of the big gate of 526, met Officer O'Neill—or passed Officer O'Neill—the officer with the man; the same man that I had been with.

Q That is with Kemmler, the defendant?

A. Yes, sir.

Q. Did you follow him up any further?

A. I did not; no, sir.

Q. Did you go back into the room where this
183 woman was afterwards?

A. I went back to the door, about five minutes after I passed them, but she had been taken up.

Q. How long was it, if you can tell, from the time that you saw this man wiping his hands in the room, to the time that Officer O'Neill had him in custody?

A. Well, not over ten minutes.

Q. Did you notice anything upon the person or clothing of the defendant?

A. No, sir; I did not. 184

Q. Any stains of any kind?

A. No, sir; I did not.

Q. As the defendant stepped over the person upon the floor, had that person changed its position in any way, when you first saw it—was it still on its hands and knees?

A. It was on knees and elbows, swaying backwards and forth.

Q. The head of this person—this room "A," where you went into the door: how far from the door was 185 the body: about how far?

A. Not more than two or three feet from the door.

Q. The head in which direction?

A. Towards the inside.

Q. Towards the stove?

A. Towards the stove; yes, sir.

Q. Did you see any other person in the room than the person upon the floor and the defendant?

A. I did not. 186

Q. Did the person on the floor say anything or make any noise, if so, tell the jury what it was?

A. Did not speak a word; it was only moaning.

Q. Did you see the defendant have anything in his hand except the cloth you have mentioned?

A. No, sir.

MR. QUINBY—You must not go home, Mr. King, until this case is completed. There is another branch of the case I may need you on.—You may ask (to counsel). 187

Cross-examination by Mr. Sickmon:

Q. Will you indicate, Mr. King, on the map there, where the person was upon the floor when you entered?

A. Well, I don't know that I can, sir; I do not know that I understand it well enough to do that.

188 Q. This is the door opening from the porch into the kitchen and this is the stove, as it has been explained to us, and this is the stoop here; that is the opening of the door into this kitchen?

A. Stood right there (indicating) and she was just about three foot and a half, three foot inside from that.

Q. On about a line with—

A. On about a line with the stove; I could just see the stove as I opened the door; I did not step over
189 the threshold.

Q. Just about opposite of the centre of the stove?

A. Well, I could not tell you, sir; I could just see the stove from there.

Q. And at the time you looked in first, you did not see the defendant Kemmler?

A. No, sir.

Q. You then closed the door when you came out?

A. Yes, sir.

Q. And stepped back over the veranda—porch?

A. I stepped off onto the first step; off there (indi-
190 cating.)

Q. Then you stepped back again and opened the door?

A. Yes, sir.

Q. When you opened the door the second time, where did you see the defendant?

A. He stood between the stove and the person on the floor and me; facing me.

Q. Faced the door?

191 A. He faced the door and faced me; the person lying between him and me, right on the floor.

Q. What was he wiping his hands with?

A. I could not tell you, sir.

Q. It was too dark to distinguish; did he say anything to you?

A. He did not.

Q. How long did he stand in the position in which he was when you opened the door?

A. Hardly half a minute. 192

Q. Did he look at you?

A. He did look at me.

Q. How did he look; stare at you?

A. No, sir.

Q. And during the time that he was looking at you, was he wiping his hands?

A. Well, I couldn't say, sir; I know that he was wiping his hands when I first looked and I stepped back and he stepped towards me.

Q. Then where did he go; did you step back on 193 the porch?

A. I stepped right back from the door in, and he came right out past me.

Q. Then he said nothing to you?

A. No, sir.

Q. When you said "Man, this is brutal," did he make any reply?

A. He did not.

Q. This is the step opposite the door, after you came off of the porch, in which direction did you go? 194

A. Came right straight out onto the street.

Q. Out this walk, and out onto South Division street?

A. Yes, sir.

Q. Then you started, when you struck the sidewalk on South Division street, in which way did he go, towards Main street?

A. No, sir; towards Jefferson street.

Q. That would be east? 195

A. Yes, sir.

Q. How far east did you go before he stopped at any place, just about the distance in rods?

A. Well, it is about fifteen to twenty rods, sir.

Q. To a saloon?

A. Yes, sir.

Q. During the walk from the house to this first saloon, did he say anything?

196 A. He did not, sir.

Q. How many times did you speak to him on the road?

A. I should say about three times.

Q. And each time that you spoke to him, would he look at you?

A. Yes, sir.

Q. But say nothing?

A. Said nothing.

Q. Did he look you square in the face?

197 A. Turned right around; was walking side by side; he turned his face right towards me.

Q. Turned around and looked at you; is that all the attention that he paid to the remarks that you made?

A. Yes, sir.

Q. Did you enter this first saloon with him?

A. Right behind him.

Q. After entering the saloon what did he do?

198 A. He stepped to the bar.

Q. Did he order anything?

A. Called for a glass of beer.

Q. And it was upon that occasion that you told the landlord not to give him any?

A. Yes, sir.

Q. The saloon-keeper: Leaving there, where did you go?

A. Passed down Jefferson street to Swan.

Q. After striking Swan, in which direction did you go? 199

A. Turned towards the city.

Q. Came this way?

A. Yes, sir.

Q. How far this way did you come before you stopped again?

A. Third door from the corner.

Q. Coming from this first saloon to Swan street, did you speak to him?

A. I did, sir. 200

Q. More than once?

A. Yes, sir; twice.

Q. Did he make any reply?

A. The first time he did not; the second time he did.

Q. This place upon Swan street that you stopped at was also a saloon?

A. Yes, sir.

Q. You stepped outside of the door and he entered? 201

A. Yes, sir.

Q. There he got something to drink?

A. Yes, sir.

Q. Then you returned to the corner of Swan and Jefferson or South Division and Jefferson?

A. Swan and Jefferson.

Q. Is that where you saw the officer?

A. Yes, sir.

Q. And did he take charge of the matter?

A. No, sir; he did not; I did not see him take charge of him. 202

Q. Where was Kemmler when you called the officer's attention?

A. He had passed into the saloon, corner of South Division and Jefferson, in at the Jefferson street door.

Q. That is this second saloon that you spoke of, is it?

A. No, sir; it was the first saloon that we had entered.

Q. Oh, that first saloon was there? 203

A. Yes, sir.

Q. And while he was inside, you called the officer's attention to the commission of this offence?

A. Yes, sir.

Q. And then you passed on to your home?

A. No, sir; I passed down Swan street to the doctor's.

204 Q. Coming back, you overtook them as they were entering?

A. As they came out from the residence.

Q. Then, during all the time that you were with Kemmler that morning, he spoke to you only twice?

A. No, sir; four times; four or five.

Q. Spoke to you directly?

A. No, he did not speak to me—answered my questions.

Q. Then during the time that you were with him,
205 he answered four questions, you say, or three?

A. I should say about five, as near as I could make out; four or five.

Q. And during the rest of the time, in response to the other questions which were asked him, he simply turned and looked at you?

A. Yes, sir.

Q. Is that the first time that you had ever seen him?

206 A. Yes, sir.

Q. You know nothing of his habits?

A. No, sir.

Q. When Kemmler first came out of the house, did he walk past you?

A. Yes, sir.

Q. Said nothing to you?

A. No, sir.

Q. Paid no attention to what you had said to him so far as replying to it.

207 A. No, sir.

Q. And walked right past you and out onto the street?

A. Yes, sir.

Q. And you followed him?

A. Yes, sir.

Recess until two o'clock.

MRS. MARY REID, sworn for the people: 208

Direct-examination by Mr. Quinby:

Q. Where do you live?

A. 526 South Division.

Q. You live in the front part of the premises of 526 South Division street?

A. Yes, sir.

Q. In the rear of you, lived whom on the 29th day of March last? 209

A. Mr. Hort.

Q. The defendant?

A. Yes, sir.

Q. Hort, as you knew him, who lived with him?

A. Mrs. Hort and his little girl.

Q. Matilda Hort and—?

A. And his little girl.

Q. What was the name of the child?

A. Ella. 210

Q. Can you tell us about what her age was?

A. The little child?

Q. Yes.

A. About four years, I should think.

Q. Who owns those premises?

A. Mr. O'Brien.

Q. You rented of him?

A. Yes, sir.

Q. The whole of the premises?

A. Yes, sir. 211

Q. And sub-let to the defendant, Hort?

A. Yes, sir.

Q. When did you first see Hort?

A. Well, when he came to rent the place.

Q. When was that?

A. It was the latter part of October.

Q. Last October?

A. Yes, sir.

212 Q. Had you seen him before that time?

A. No, sir; not that I remember of.

Q. Did he tell you at that time what his name was?

A. Mr. Hort.

Q. He told you what his name was?

A. Yes, sir.

Q. What did he tell you his name was?

A. Mr. Hort.

Q. When did they enter into possession of the
213 premises?

A. The 17th of October.

Q. Last?

A. Yes, sir.

Q. Did you lease him the barn?

A. Yes, sir.

Q. At that time did he state what his business was?

A. Yes, sir.

Q. What did he state his business to be?

A. A huckster.

214 Q. How many horses did he have in the barn?

A. Well, he had one at the time he rented the barn, but he had two, I think two others afterwards.

Q. Afterward?

A. Yes, sir.

Q. So on this day in question he had three horses there?

A. I think he did.

Q. What is the answer?

215 A. I think he did.

Q. How many wagons did he have there?

A. I think he had four.

Q. Were any of them covered wagons?

A. One.

Q. Tell us generally about what time in the ordinary course of business that they got up, when they went away, and when they came back?

A. Why, I should think about half past seven, eight o'clock in the morning.

Q. Usually they would go away? 216

A. Yes, sir.

Q. Would Hort go away on his wagon?

A. Yes, sir.

Q. And about what time would he return?

A. Oh, sometimes it would be four or five o'clock, sometimes a little latter.

Q. Do you know what he sold?

A. He sold potatoes and apples and vegetables.

Q. Eggs and butter?

A. Yes, sir. 217

Q. How many rooms did this family occupy?

A. Four.

Q. See if you can understand this map. This is one plan. You live in the front here, and occupy in front?

A. Yes, sir.

Q. And these marked "A"— that is the kitchen?

A. Yes, sir.

Q. "B," "C" and "D"; were they the rooms occupied by the Hort family? 218

A. Yes, sir.

Q. There was a door-way between your kitchen and their kitchen, was there not?

A. Yes, sir.

Q. How was that secured, if in any way?

A. It was locked.

Q. On your side or on the side of the Hort family?

A. On my side.

Q. You did not go into their room through your doorway? 219

A. No, sir.

Q. Have you been in, were you in their premises prior to this homicide, while they occupied it?

A. Yes, sir.

Q. What did they use room "A" for; that is the room next to you?

A. A kitchen.

220 Q. Where their stove was?

A. Yes, sir.

Q. What they used for a kitchen?

A. Yes, sir.

Q. What did they occupy room "B" for off of the kitchen?

A. A bed-room

Q. Do you know who occupied that room?

A. Mr. and Mrs. Hort.

221 Q. Immediately back of room "A," where the door goes out to the barn, do you know what they used that room for?

A. When they first came there they used that as a parlor, kind of a sitting room, and at last they used it as kind of a store-room, too.

Q. And there is a room off of room "C" marked upon the map?

A. Yes, sir.

Q. "D"?

A. That is a bed-room.

222 Q. Who occupied that, if you know?

A. I do not know.

Q. You have seen Mrs. Hort a number of times?

A. Yes, sir.

Q. And the little girl a number of times?

A. Yes, sir.

Q. You may look at this picture. (Counsel shows photograph to witness.) And have you seen that before?

223 A. Yes, sir.

Q. Is that a good likeness of Mrs. Hort and the little girl?

A. Yes, sir, very good.

Q. Very good; very correct picture, is it?

A. Yes, sir.

Photograph marked "A" for identification.

Q. About how old a woman was Mrs. Hort? 224

A. Why, I should think about 28, 30.

Q. Did they have any servant in the family?

A. Didn't; no, sir.

Q. Who did the work in the house?

A. Mrs. Hort.

Q. Did any person board with them in or about this date in question?

A. Yes, sir; a young fellow by the name of De Bella.

Q. Was he known by any nick-name, around the 225 premises?

A. I do not know.

Q. Did you ever hear him called "yellow"?

A. I have since.

Q. You have heard him called since, "yellow"?

A. Yes, sir.

Q. Where were you on the morning of the 29th of March when anything occurred that attracted your attention?

A. I was busy washing dishes in my pantry? 226

Q. You go from your kitchen into your pantry, do you not?

A. Yes, sir.

Q. Your pantry is situated upon the westerly side of your house?

A. Yes, sir.

Q. And it is between the shed, and what is this room this side of your pantry, towards the front?

A. That is a bed-room. 227

Q. What were you doing in this pantry?

A. Washing dishes.

Q. There is a door-way from the pantry out into the kitchen?

A. Yes, sir.

Q. And from the kitchen the door leads into these premises occupied by the Hort family, as you have stated?

228 A. Yes, sir.

Q. What time in the morning was this?

A. About eight o'clock.

Q. Tell us how you fix the time, if you have any way of fixing it?

A. What say?

Q. How do you fix it about eight o'clock?

A. Because my little sister was with me, getting ready to go to school; was hurrying to get the work done so that she could go to school.

229 Q. What time does she go to school?

A. Nine o'clock.

Q. Tell the jury the very first thing that attracted your attention while you were working in the pantry?

A. I heard a terrible blow; and then I heard—;

Q. What was the sound; describe the sound to the jury, as it struck you?

A. It sounded as though some one had been struck, something, and then I heard an awful scream.

230 Q. Was the scream the voice of a male or female?

A. Female.

Q. Could you distinguish what the scream—was it any word; were there any words?

A. No, sir.

Q. Then after you heard the scream what did you hear, if anything?

A. I heard something as though it dropped; something fall; heavy fall; and then I heard hacking as though some one was chopping wood.

231 Q. Then what?

A. And then I heard screaming again; and I ran to my outside door, leads out on the porch, and Mrs. Roberts came—had her window open, and I says, "Mrs. Roberts—"

Q. Mrs. Roberts lives next house to you?

A. Yes, sir; I says, "Mrs. Roberts"—

Objected to by defendant's counsel.

Q. What you said to Mrs. Roberts would not be proper here. 232

A. I says, "Mrs. Roberts"—

Q. Wait a minute.

A. Oh, excuse me.

Q. You spoke to Mrs. Roberts something?

A. Yes, sir.

Q. We do not care what that was: did Mrs. Roberts says anything in reply; we do not care what that was; she made some reply; now tell us what you did, or what Mrs. Roberts did, not what they said or you said? 233

A. I went back and rapped on Mrs. Hort's—the door that goes from my kitchen into Mrs. Hort's. I rapped on the door and called "Mrs. Hort," three times.

Q. How did you call?

A. I called "Mrs. Hort."

Q. Tell us the pitch of your voice, whether it was ordinary or beyond the ordinary call?

A. Yes, sir. 234

Q. Beyond the ordinary?

A. Yes, sir.

Q. Well, go ahead.

A. She did not answer me, and I stepped back to my outside door, and I heard some one walk towards their outside door, and come out; it was Mr. Hort.

Q. Describe his personal appearance, and what he said, if anything?

A. I says, "Mr. Hort, what is the matter"? He says, "I've killed her." I says, "You don't mean it!" He says, "Yes, Mrs. Reid, I have, and I'll take the rope for it?" 235

Q. For it?

A. Yes, sir.

Q. What did you say to that?

A. I says, "No, you haven't." He says, "Yes, I have." He went back into his part, and I went into my house.

236 Q. What did you notice upon his person, if anything; his hands or—

A. His hands were stained with blood.

Q. Did he have anything in his hands when he came out, that you noticed?

A. No, sir.

Q. What did you then do?

A. I went back and I got my two little children ready, and my sister, and we ran over to Mrs. Roberts.

Q. Did you take them over?

237 A. Yes, sir.

Q. Whom did you see there, if any person?

A. Mrs. Roberts and Mr. King.

Q. Asa D. King, the witness upon the stand?

A. Yes, sir.

Q. Where did you first see him?

A. In their sitting-room.

Q. After you took the children over, what did you then do?

238 A. Mrs. Roberts says, "Mr.—

Q. Now, we will have to excuse you in that regard. You learned something in there; you had some conversation with Mrs. Roberts in there?

A. She says, "He has—

Q. Never mind what it was; the Court will not let you tell it because it is not proper; you learned some fact in there, of something?

A. Yes, sir, learned that the little girl was over to my house.

Q. Then what did you do?

239 A. I went over and got the little girl.

Q. You got Mrs. Reid's little girl?

A. Mr. Hort's little girl.

Q. I mean Mr. Hort's little girl, where did you find her?

A. In my kitchen.

Q. You knew how she came in there?

A. I heard Mr. Hort carried her in.

Q. What is that? 240

A. I heard Mr. Hort carried her in.

Q. Did you see Mr. Hort there at that time?

A. I did not.

Q. What did you then do?

A. I went back to Mr. King's and stayed there.

Q. Did you see Mr. Hort subsequently, the defendant?

A. No, sir.

Q. You did not see him again?

A. No, sir. 241

Q. You did not see him then from the time that he went back into the house?

A. No, sir.

Q. On the occasion that you have mentioned, till here in Court; did you go into the room where Mrs. Hort was, at the time?

A. No, sir.

Q. You never saw her then?

A. No, sir; not at the time. 242

Q. Did you see them take her out?

A. No, sir.

Q. You were in Mr. Roberts' at the time?

A. Yes, sir.

Q. Did you afterwards; after they took her away; did you go into the room?

A. I did.

Q. Tell the jury what you saw. When was it, please?

A. The same day. 243

Q. And about what time?

A. I should think it was about ten o'clock. Some gentleman handed me the little girl's clothes.

Q. What did you see in these rooms; tell the jury?

A. The table was upset, dishes on the floor, and there was blood all over the floor.

Q. Any blood upon the wall?

A. I did not see any.

244 Q. Did you go into the bed-room?

A. I did not.

Q. How long did you stay there?

A. Perhaps two or three minutes.

Q. Where is the little girl?

A. I do not know at present; I think she is with her grand-father.

Q. Who took her away from your house?

A. Mrs. Hort's father.

Q. To Philadelphia?

245 A. Yes, sir.

Q. He came on here subsequently, did he not?

A. Yes, sir.

Q. After this homicide. Prior to this occurrence did you hear any noise in this room, that morning?

A. Nothing, only I heard some one busy around the room.

Q. Prior to this time did you hear anything transpiring between Hort and his wife, in these rooms?

A. In this morning?

246 Q. No, prior to this morning.

Mr. Sickmon: I object.

The Court: Why?

Mr. Sickmon: Incompetent and immaterial.

Q. What I mean, any disputes?

247 Mr. Sickmon: Prior to this day.

The Court: Yes; I suppose you offer it to show what the relation of these parties was.

Mr. Quinby: Yes, upon the question of how they lived together.

The Court: Go on.

Mr. Sickmon: Give us an exception. 248

Q. Tell—tell what you heard between them, if anything?
A. Why, they used to have words.
Q. What kind of words?
A. They did not;—well they used to quarrel a great deal; I don't know what about; they didn't seem to live happy.

Mr. Sickmon: I move to strike out the last answer. 249

The Court: Well, Mr. Quinby, I think she should state what took place between them, instead of characterizing it as a quarrel or unhappy living together.

Mr. Quinby: Yes.

Q. Could you tell what the difficulty was; what subject they were discussing?
A. No, sir. 250
Q. Could you tell what language he used toward her?
A. He never had anything to say.
Q. How?
A. He never had anything to say.
Q. Could you tell the subject, I ask you; what they were disputing about?
A. Why mostly because he drank.
Q. Drank somewhat?
A. Yes, sir. 251
Q. What did you ever hear her say to him, if anything?
A. She would use unladylike—
Q. What I want particularly—about his minding her; what would she say upon the subject?
A. She would want him to—

The Court: What did she say?

252 Q. Just tell us what she said?

A. Why, "you—

Q. What did she say about his minding her?

A. "You will have to mind me, or I'll leave you," something like that, she said.

Q. Did you see the body of Matilda Ziegler after her death?

A. I did.

Q. Where?

253 A. Over to Crowley Brothers; over at the undertaking rooms.

Q. That was the body of Mrs. Ziegler, or known to you as Mrs. Hort?

A. Yes, sir.

Q. Prior to this homicide state whether or not you ever saw any hatchet or hatchets around the premises there of Hort's?

A. Yes, sir.

Q. How many?

A. I saw one; she gave me one shortly after they

254 moved there; she said she had two, and she gave me a hatchet.

Q Have you seen a hatchet on their premises yourselves?

A. Yes, sir.

Q. Where did you see it; where was it?

A. In her kitchen.

255 *Cross-examination* by Mr. Sickmon:

Q. Upon how many occasions did you hear quarreling in their room, prior to the homicide?

A. I could not tell you.

Q. A great many times?

A. Yes, sir.

Q. You say that he never had anything to say, who did the talking?

A. She did. 256

Q. Did she talk in a loud tone of voice?

A. Sometimes.

Q. And used unladylike language?

A. Yes, sir.

Q. To him?

A. Yes, sir.

Q. How long, upon this morning of the killing, before you heard this noise, was it that you heard her talking?

A. I didn't hear her say anything that morning. 257

Q. I thought you said you heard a noise that morning?

A. I did, as though someone was getting breakfast.

Q. That was all that you heard?

A. Yes, sir.

Q. You say that she used to talk to him about drinking?

A. Yes, sir.

Q. Did he use to drink a great deal?

A. I think he did. 258

Q. Get intoxicated?

A. Yes, sir.

Q. Almost every day?

A. I could not say.

Q. Well, quite often?

A. Yes, sir.

Q. Did that continue all the time that they lived in your premises?

A. Yes, sir. 259

Q. From the time they went there on the 17th of October, 1888, down to this morning of the 29th of March?

A. Yes, sir.

Q. About how many times a week would he become intoxicated?

A. I could not say.

Q. Two or three times; what is your answer?

260 A. I could not say.

Q. What is your best judgment?

A. I should think so.

Q. He drank all the time, more or less, did he not?

A. More or less.

Q. How many times have you seen him intoxicated?

A. I do not think I saw him any more than twice.

Q. You did not very often see him, did you?

A. No, sir.

261 Q. Did you see him the night before the killing, the 28th day of March?

A. I think I did.

Q. What time in the day did you see him?

A. This was in the evening.

Q. What time in the evening?

A. I should think it was about half-past seven.

Q. He was intoxicated then, was he not?

A. I think he was.

262 Q. Considerably so?

A. Yes, sir.

Q. Then he went away, did he not?

A. I do not know.

Q. You do not know as to that. Now, upon the morning of the 29th, where did you first see him after you heard this noise?

A. When he came out of the door.

Q. Out onto this porch?

A. Yes, sir.

263 Q. Did he come out of the kitchen door?

A. Out of his kitchen door; yes, sir.

Q. Where were you? Were you at your kitchen door?

A. Yes, sir.

Q. And he came out of his kitchen door there? (Counsel indicating upon map.)

A. Yes, sir.

Q. Where did he go when he came out of this door?

A. He came up towards me. 264

Q. Up to this time so far as your observation extended, was the defendant always kind to her?

A. Yes, sir.

Q. Always treated her with a great deal of gentleness: never said any harsh words to her?

A. Not that I know of.

Q. I am speaking simply of your knowledge?

A. No, sir.

Q. When she would use this harsh language to him, would he make any reply to it, generally? 265

A. He was very quiet when he——

Q. I mean, he would not get angry?

A. No, sir.

Q. Just quietly answer?

A. Yes, sir.

Q. And during all the time that they were in your house did you ever know of his ill-treating her; using her ill?

A. Not that I know of.

Q. Seemed to think a great deal of her, did he not; did he appear to? 266

A. Why, he did.

Re-direct examination by Mr. Quinby:

Q. What made you think he thought a great deal of her?

A. Well, he never used any such language as she did.

Q. That is what makes you think that he thought a great deal of her? 267

A. Yes, sir.

Q. This night of the 28th, where did you see him when you thought he had been drinking?

A. I saw him when he drove into the yard, saw him get out of his wagon.

Q. Where were you standing?

268 A. I was at my hydrant getting some water.
Q. What made you think he was drinking?
A. Because he staggered.
Q. How?
A. Because he could not walk straight.
Q. What did you first say?
A. Did not say anything.

Mr. Quinby—What did she say, Mr. Stenographer?

269 The Stenographer—"Because he staggered."

Mr. Quinby—I thought you said "sang."

Q. Did he put out his horse?
A. I went into the house then, I did not see anything more of him.
Q. You did not watch him any further?
A. No, sir.
270 Q. When you saw him come out of the door this morning in question he was not intoxicated then, was he?
A. Not that I know of.
Q. He looked all right?
A. Yes, sir.
Q. Sober?

Henry H. Bingham, M. D., sworn for the people:

271 *Direct-examination*, by Mr. Quinby:

Q. Where do you live?
A. 2485 Main street.
Q. You are a practicing physician and surgeon?
A. Yes, sir.
Q. How long have you been such?
A. About five years, a little over.
Q. What University are you a graduate of?

A. University of Buffalo. 272

Q. You are one of the post-mortem examiners of the city?

A. Yes, sir.

Q. And have been how long?

A. Going on three years.

Q. Did you make the autopsy in the case of Matilda Ziegler, known as Matilda Hort?

A. I did.

Q. Upon her body?

Q. Where did you first see her body? 273

A. At the Erie county morgue.

Q. Did Coroner Kenney produce the body to you?

A. Yes, sir.

Q. When was it made?

A. On the 30th day of March.

Q. About what time in the day?

A. Between the hours of 10.30 in the morning and one in the afternoon.

Q. How long did it occupy; all of that time? 274

A. About all of that time.

Q. How was the body dressed when you first saw it?

A. I believe the body was nude, when I saw it.

Q. Now, doctor, I want you to tell the jury what marks of violence you found upon the body; your entire autopsy; tell it in your own way, describing the person of the deceased, as to her age as near as you could judge, its nourishment, its size, height, weight?

A. I found the body of a well-nourished female; 275 height, about five feet; weight, about 150; whose age I should judge was between twenty-five and thirty; on the head I found twenty-two distinct wounds, five of which were situated to the right of the middle line, the remainder to the left; the severest ones were confined to the forward portion of the left side of the head; one wound one inch long, an inch and a half above the left eye; a triangular wound two inches

276 above, to the right of the first, and close to the middle line; two wounds, each one inch long, adjacent to one another, on either side of the middle line; the fifth wound, one and a half inches long, two and a half inches back of the last two, and transverse to the middle line; the sixth wound on the prominence at the back of the head and half an inch long; to the right of these were three wounds, each a half an inch long; to the left of the wound on the prominence at the back of the head were two more wounds a half an inch
277 long; two wounds one inch long just above the right ear; above the last two a half an inch, a longitudinal wound, one inch long, a scratch wound on the left cheek two inches in front of the left ear; a one-half inch wound two inches back from the outer angle of the left eye; another wound one inch long two inches above this last; several—three or four run together—by the surgeon's knife, at seat of greatest injury; the twenty-second, a cut wound in the left ear; a bruise under the left eye; a bruise just above the outer angle
278 of the right eye; a bruise on the surface of the left arm; a similar one at the elbow; a slight scratch wound on the inner surface of the left wrist; a bruise at the bend of the elbow of the right arm, on the inner surface; a slight wound midway between the elbow and wrist of the right arm; two on the back of the wrist, one on the back of the hand; a cut wound on the back of the right thumb; one on the back of the middle finger; one on the ball of the thumb of the
279 right hand; bruise on the outer surface of the right hip. All the wounds to the right of the middle line and back of a line drawn from ear to ear, showed no fracture of the underlying skull. The wounds at the back of the head showed indentations of the skull. The fractured portion of the skull from which fragments were removed, involved the forward portion of the bone which enters into the formation of the left side of the skull, the outer portion of the bone which

forms the forehead, and the thin portion of the bone 280
which enters into the formation of the temple; making
a hole in the skull three and one-half inches long from
before backwards, and three inches long from above
downwards; whose forward angle was two and one-
fourth inches above the anterior angle of the left eye
Its lower angle was at a point about two inches for-
ward the left ear. Its upper angle was situated three
inches above the lower; its rear angle extended just
back of a line drawn over the crown of the head. A
fracture four and a half inches long ran from the for- 281
ward angle of the opening; a second fracture one and
three-fourths inches long—no, a second fracture one
and three-fourths inches back of the first ran upwards
and backwards to the vertex of the head: it was three
inches long. Both fractures were situated on the bone
which enters into the formation of the forehead. The
brain tissue was lacerated. More or less effused blood
under the scalp. The lungs, the heart, the liver,
spleen and kidneys were normal, the stomach was 282
empty and healthy.

Q. Did you examine the brain itself?

A. That portion that was exposed though the opening.

Q. Only?

A. Only.

Q. Were these wounds upon the head, or any of them incised or wounds produced by a sharp instrument?

A. I should judge that some of them were incised 283
and some, because of their shape, were wounds that
were made with a blunt instrument. They were torn.

Q. What was the cause of this woman's death?

A. Shock and hemorrhage.

Q. Shock produced from what?

A. From the blows administered to the head.

Q. Did you find any cause of death except the shock derived from these injuries?

284 A. No, sir.

Cross-examination by Mr. Sickmon:

Q. The first that you saw of this body was at the morgue?

A. Yes, sir.

Q. At the time that you made the examination had there been any operation performed upon the 285 body?

A. Yes, sir.

Q. What part of the body?

A. On the head.

Q. Where this fracture occurred upon the left side?

A. Yes, sir.

Q. Was that the only operation?

A. That is the only one that I detected.

286 Mrs. Nellie Roberts, sworn for the people:

Direct-examination by Mr. Quinby:

Q. Where do you live?

A. 530 South Division.

Q. You are a married lady?

A. Yes, sir.

Q. Live there with your husband?

A. Yes, sir.

287 Q. You are next to 526?

A. Yes, sir.

Q. South Division street?

A. Yes, sir.

Q. Have you seen the defendant before?

A. Yes, sir.

Q. When, about, did you first see him; about what time was it when he came there to live?

A. Soon after that.

Q. Do you know Mrs. Reid? 288

A. I do.

Q. And where she lives?

A. Yes, sir.

Q. Do you remember the 29th of March last?

A. I do.

Q. The morning of that day?

A. Yes, sir.

Q. What was the first thing that attracted your attention that morning, growing out of this homicide?

A. Mrs. Reid, standing at the door. 289

Q. The last lady that was upon the witness stand?

A. Yes, sir.

Q. Anything that called your attention to her?

A. There must have been some noise that attracted my attention.

Q. Where were you standing?

A. By the window.

Q. Window up or down?

A. Window was down.

Q. What did you do to the window, if anything? 290

A. I opened the window.

Q. Did you hear anything?

A. I heard a scream.

Q. Coming from what direction?

A. From the north of where Mrs. Reid stood.

Q. Was the scream that of a female voice?

A. Yes, sir.

Q. You had some talk there, yourself and Mrs. Reid? 291

A. We did; yes sir.

Q. Was your husband there at the time?

A. He was in the house.

Q. Do you know what he did, if anything?

A. I don't know what he done.

Q. Did you see Mrs. Reid do anything?

A. I saw her rap at the door.

Q. At what door?

292 A. Going into the Hart's rooms.

Q. Did you hear her call ?

A. I did.

Q. What did you hear her say ?

A. "Mrs. Hart"—or "Mrs. Hort;"—"Mrs. Hort, what is the matter ?"

Q. Did you hear any reply ?

A. No reply.

Q. Then what did she do ?

A. She stepped back out into the porch again.

293 Q. Did you hear any other noise ?

A. Yes, sir; I heard him trying the key in the door of his rooms; of Hort's rooms.

Q. Heard someone trying a key ?

A. Yes, sir.

Q. How long after that before you saw any person come out of Hort's place ?

A. It could not have been more than a second or two before he stepped out.

294 Q. He—you mean—

A. Mr. Hort; onto the veranda.

Q. Did you notice anything particular about his personal appearance ?

A. Nothing only his hands were stained with blood.

Q. What did Hort do ?

A. Well, he wrung his hands or brushed his hands.

Q. How did he brush it; upon what ?

A. Just this way, that is all (indicating).

295 Q. Indicate so that I can see ?

A. Just indicate there was something on his hands.

Q. Did he have anything in his hands that you noticed ?

A. He did not.

Q. What did you hear him say, if anything ?

A. That he had killed her.

Q. Use his words ?

A. He had killed her, that is all I heard him say.

Q. What reply did Mrs. Reid make to that, if any? 296

A. She says "You haven't, have you?"

Q. What did he say to that?

A. He said he had.

Q. What else did you hear him say?

A. He was ready to give himself up.

Q. What else?

A. That is all.

Q. Anything about a rope that you heard?

A. No, sir; I did not. 297

Q. You did not hear that?

A. I did not hear that.

Q. What did you do then?

A. I dropped the curtain that was at the window and stepped away.

Q. Did you see Mrs. Reid again?

A. I did.

Q. How long after that?

A. It does not seem as if it was more than two or three minutes.

Q. Where did you see her? 298

A. In our house—530.

Q. She came in there?

A. She did.

Q. Bringing anything or anybody with her.

A. Her two children.

Q. Did you hear any other noise after that?

A. Yes, sir.

Q. What was it?

A. Him walking on the steps on the veranda. 299

Q. What did you do?

A. I opened the curtain.

Q. What did you see?

A. Saw him with a little child in his arms.

Q. Hort?

A. Hort.

Q. His child?

A. I suppose—

300 Q. Or that child?

A. That child that was in there.

Q. What did you see him do with it?

A. Placed the child down at Mrs. Reid's door.

Q. What else did you see?

A. Nothing.

Q. Do you know Mr. King?

A. Yes, sir.

Q. Asa D. King?

A. Yes, sir.

301 Q. Did you see him there that morning?

A. Yes, sir.

Q. Where was he when you first saw him?

A. When do you mean?

Q. That morning, Mr. King, that morning?

A. Why, he is my brother.

Q. I understand.

A. Well, I saw him in the house.

Q. What time did he get there?

302 A. I should think it was twenty minutes after six or half past.

Q. Came in on the train?

A. Yes, sir.

Q. As you understood. What time did he go out of your house?

A. Just after Mrs. Reid came in; I could not tell just exactly the time.

Q. Do you know where he went?

A. I do not.

303 Q. Did you see him go away?

A. I did not.

Q. You did not look out?

A. I did not.

Q. What time did Mr. King come back to your place?

A. I could not tell you that.

Q. About how long was he gone?

A. I could not tell you.

Q. Can not tell about? 304

A. I do not know.

Q. That forenoon, sometime?

A. Yes, sir; came back in the forenoon.

Q. Did you see Hort go away?

A. I did not.

Q. Did you see Mrs. Reid go out and take the little girl?

A. I did.

Q. What did she do with it?

A. She brought it into our place. 305

Cross-examination by Mr. Sickmon:

Q. How long had Mr. Hort been living at 526 before you saw him?

A. I couldn't tell you, sir.

Q. Did you see him frequently?

A. No, sir.

Q. How many times between the time that you saw him first and the morning of the 29th of March did you see him? 306

A. I could not tell you that.

Q. Was it a great many times or few times?

A. Few times that I saw him.

Q. Were you acquainted with him?

A. No, sir.

Q. Ever speak with him?

A. No, sir.

Q. Do you know of his drinking a great deal? 307

A. I do not.

Q. You know nothing as to that?

A. No, sir.

Q. You live on the east side?

A. Yes, sir.

Q. And the barns were on the other side of the house from you?

308 A. Yes, sir.

Q. And the entrance to those barns is on the same side—is on the opposite side from you?

A. On the opposite side; yes, sir.

Q. Did you know Mrs. Hort?

A. I didn't only as I had seen her go in and out.

Q. Did you have any speaking acquaintance with her?

A. No, sir.

Q. Do you know on what terms they got along?

309 A. I do not.

Q. Did you ever hear her talking to him in a loud tone of voice?

A. I have heard loud talking there.

Q. In a woman's voice?

A. Yes, sir.

Q. How frequently?

A. Well, not more than two or three times during the winter.

Q. Never heard him respond, did you?

310 A. Not but once.

Q. Then it was in a mild tone of voice, was it not?

A. Yes, sir.

Q. You never heard him talk in an angry tone of voice to her?

A. No.

Re-direct examination by Mr. Quinby:

311 Q. What was his condition this morning when you saw him; was he sober or not?

A. Apparently; yes, sir.

Q. Appeared to be all right?

A. Appeared to be all right.

Re-cross examination by Mr. Sickmon:

Q. Did you look at him particularly?

A. Yes. 312

Q. How far were you from where he stood?

A. I shouldn't think it was over eight or ten feet from the window.

Q. Did he talk to you at all?

A. No, sir.

Q. Did he look at you?

A. No, sir.

Q. Did you raise the window while he was standing there?

A. Before he came out. 313

Q. Did you say anything while he stood there?

A. No, sir.

Q. Did you say anything to Mrs. Reid while he was there?

A. Not while he was there.

Q. When he left where did he go?

A. He might have went back into his rooms, I couldn't say.

Q. He went back into the house? 314

A. Into the house.

Q. At any time that you heard her talking to him did you hear that she said?

A. No, sir.

JOHN O'NEIL, sworn for the people.

Direct examination by Mr. Quinby:

Q. Mr. O'Neil, you are a member of the police force of the City of Buffalo? 315

A. Yes, sir.

Q. And you have been how long?

A. I was appointed in 1873.

Q. What precinct were you connected with on the 29th of March last?

A. Second Precinct.

316 Q. What office do you hold?

A. Patrolman.

Q. Were you on duty the morning of the 29th of March?

A. Yes, sir.

Q. What time did you go on duty that morning?

A. That morning at eight o'clock.

Q. What beats have you in that precinct?

A. Seven, eight and nine.

317 Q. What do they include, what districts?

A. Bounded on the north by——

Q. They include these premises?

A. No, sir; they do not.

Q. What streets; Jefferson street is within your beat, is it?

A. One side of it is; yes, sir.

Q. Did you see the witness King on the stand this morning?

A. Yes, sir.

Q. Asa D. King, of Boston?

318 A. Yes, sir.

Q. Had you seen him before?

A. Yes, sir.

Q. When first, before, to notice him?

A. The morning of the 29th.

Q. Where did you first see him that morning?

A. Corner Swan and Jefferson.

Q. About what time in the morning was that?

A. Twenty minutes past eight, I should judge. I
319 didn't know the time.

Q. Did he make any signal to you?

A. Yes, sir.

Q. Was anybody with him?

A. Yes, sir; there was another man, I believe—two.

Q. How?

A. There was one or two others; one I guess.

Q. Who were they, do you know?

A. I do not know, sir. 320

Q. You had some conversation with him that morning, did you?

A. No, I didn't wait to talk with him, he told me there was a man——

Q. He told you there was something?

A. Yes, sir.

Q. And immediately you went, where?

A. To the corner of South Division and Jefferson.

Q. What did you do?

A. I went into a saloon there. 321

Q. Whose saloon?

A. Thomas Martin's.

Q. What did you find in there?

A. Kemmler, Mr. Kemmler.

Q. The defendant. What was he doing?

A. He was coming towards the door as I was going in.

Q. What did you say to him, or do with him?

A. I told him I wanted him. 322

Q. What did he say?

A. He says, "All right, I'll go with you."

Q. Go ahead?

A. We went out the front door, and I asked him if he hadn't been licking his wife; he says, "Yes." "What did you hit her with?" I asked him. He said, "With a hatchet." I asked him what he done it for; he told me that was to be found out. I asked him where he lived, and he showed me. I brought him up to the house. 323

Q. About how far is it from 526 to this saloon that you mentioned, how many minutes' walk?

A. About a minute.

Q. How?

A. I could go there in about a minute, I believe. Minute and a half anyway.

Q. When you brought him up to the house what did you do?

324 A. Brought him into the room.

Q. Went back in?

A. I asked him where he lived, he showed me; I brought him back in there.

Q. The rear of these rooms?

A. Yes, sir.

Q. What took place there? What did you see?

A. I see the woman lying on the floor.

Q. How was she lying on the floor?

A. Appeared to be lying kind of on her face and
325 hands (witness indicating); her hair thrown over her head.

Q. You may state what her condition was, how she appeared?

A. She was bloody—blood on the floor.

Q. What further took place, what did you say to him, if anything?

A. I told him he made a good job out of it; he said he guessed so. The doctor was in there.

326 Q. What doctor?

A. The gentleman that is over yonder, I believe; I do not know his name.

Q. Dr. Blackman?

A. I believe that is the name; yes, sir; he is over there.

Q. What did you farther say to the defendant?

A. I asked him what he thought of the case; he said it was a pretty bad one, he thought.

Q. I do not ask you what you said to the doctor.
327 What did you say to Kemmler?

A. I told him to come to the station-house.

Q. What did he say?

A. He said "All right."

Q. When you got to the station-house did you make any search of his person?

A. I did, sir.

Q. What did you find upon it?

A. Found some money with him.

Q. How is that? 328
A. I found some money with him.
Q. How much?

Mr. Sickmon: I object, as immaterial.

A. Three hundred and sixty-three dollars and—

The Court: How is that important?

Mr. Quinby: I do not know as it is. 329

The Court: No, better pass it.

Q. What else besides money?
A. Well, key, I believe, and a few little trinkets; he told me he had some money in the trunk in the house.
Q. Did he tell you how much money he had in the trunk?
A. He said he had three or four hundred dollars in the trunk at the house, and I went down after the trunk, brought the trunk to the station-house, unlocked it and took the money out of it, gave it to the doorman to count. 330
Q. Was it about that amount?
A. I did not count that amount; the doorman counted it.
Q. How did the defendant carry the money on his person?
A. He had part of it in bills and he had a little bag, linen bag. 331
Q. A little bag?
A. Yes, sir.
Q. What was in that, silver or bills?
A. Silver and copper coin.
Q. Did you see him afterwards?
A. Yes, sir.
Q. When next afterwards?

332 A. At the coroner's inquest.

Q. Have any talk with him?

A. No, sir.

Q. Have you had any talk with him since?

A. No, sir.

Q. What was his condition that morning as to sobriety?

A. I should judge he was sober.

Q. Walked all right?

A. Yes, sir.

333 Q. Talked all right?

A. I did not talk much with him.

Q. How?

A. I didn't have much to say to him.

Q. What he said was coherent?

A. Well, what he said, I should judge he was sober.

Q. Where did you say you met the doctor?

A. At the corner of Swan and Jefferson.

Q. He went down there with you?

334 A. No, sir; I met him—the doctor—I met the doctor at the gate.

Q. At the gate?

A. At his gate. I thought you meant King, excuse me.

Q. Did King follow you down, or not?

A. No, sir; I met King at the gate.

Cross-examination, by Mr. Sickmon.

335

Q. After you delivered him at the station house did you see him again?

A. Yes, sir.

Q. Did you take him up for the purpose of making a statement?

A. Where to?

Q. Up stairs, or anywhere, before Captain Barry; did you take him before Captain Barry?

A. Captain Barry and him were in the station-house after a while; I didn't have him down there to make a statement. 336

Q. You were not there when Captain Barry and he were there together?

A. I forget.

Q. You have no recollection of it?

A. No.

Q. Was Kemmler given any liquor while you were there at the station-house?

A. Not that I know of. 337

Q. You didn't get any?

A. No, sir.

Q. Nor you did not see him have any?

A. No, sir.

Q. How long did you remain there after you brought Kemmler there?

A. About a few minutes; I went back after the trunk.

Q. After you returned with the trunk what did you do? 338

A. I went to the Fitch Hospital.

Q. How—where they had taken the woman?

A. Yes, sir.

Q. You did not remain at the station-house any length of time?

A. No, sir.

Q. Did you ask Kemmler a number of questions when you were going down with him?

A. No, sir. 339

Q. None except what you have stated to us?

A. That is all.

Q. Kemmler did not talk a great deal to you, did he?

A. No, sir.

Q. Some of the questions which you asked him he did not answer?

A. I didn't ask the man only what I told you, and he answered them.

340 Q. When did you first see Kemmler; the first time that you ever saw him?

A. I should judge it was about last July.

Q. You had known him from that time on?

A. Yes, sir.

Q. How often would you see him between those times?

A. Well, maybe twice a day, sometimes.

Q. He drank considerable, did he not?

A. Maybe once a day, would not see him at all for
341 a day, maybe for three days.

Q. He drank a great deal, did he?

A. I haven't seen him any the worse for liquor but once.

Q. When was that?

A. That was in July; that is the first night I came to know him.

Q. Did you arrest him?

A. No, sir.

Q. He was intoxicated that night?

342 A. Not very much.

Q. Well, somewhat?

A. A little, yes; able to take care of himself.

Q. That is the only time you ever saw him intoxicated?

A. That is the only time I ever saw him have any signs of liquor upon him.

Q. You knew that he drank considerable, did you not?

343 A. No, sir, I didn't know anything of the kind.

Re-direct examination by Mr. Quinby:

Q. Did you see him frequently during that time?

A. Yes, sir.

Q. July, along up to this homicide?

A. After that first night I saw him fall, I always knew him after that.

Q. After that you saw him about how many times; frequently? 344

A. Well, yes, sometimes I would see him twice in one day, and maybe three times of a day, and then be a week before I would see him again; two days perhaps.

Q. And that is the only time you ever saw him, what you say, under the influence of liquor?

A. That is all.

Q. But he was able to take care of himself?

A. Yes, sir; he was not able to put the wagon in the barn, and I helped him in with the wagon; that is the way I came to notice him. 345

Re-cross examination by Mr. Sickmon:

Q. Helped him what?

A. Helped him put the wagon in the barn.

Q. You helped him put the horse out?

A. Yes, sir; put the horse, and put the wagon in the barn. 346

Q. What time of day would you see him?

A. Oh, afternoon most generally.

Q. What time are you on duty?

A. Sometimes in the forenoon, sometimes in the afternoon, sometimes before twelve o'clock and sometimes after twelve o'clock at night.

Q. Did you ever see him after six o'clock in the evening?

A. No, sir.

Q. Then at all times that you saw hin, you saw him in the day-time? 347

A. But this night he was unhitching the horse, it was after six o'clock this night.

Q. The only time that you saw him after six o'clock?

A. Was that one night.

Q. He was intoxicated?

A. Yes, sir.

348 DR. DELEVAN E. BLACKMAN, sworn for the people.

Direct examination by Mr. Quinby:

Q. You are a practicing physician and surgeon?

A. Yes, sir.

Q. Live in Buffalo?

A. Yes, sir.

Q. Do you remember the morning of the 29th of March last? 349

A. I do.

Q. What, if anything, calls your attention to that morning?

A. I was called about eight o'clock to 526 South Division street.

Q. What called your attention there; how did you come to go there?

A. I was called there.

Q. By whom?

A. I do not know.

350 Q. By a man or a woman or a boy?

A. It was a young man perhaps twenty or twenty-one years of age; I do not know the name.

Q. Found you at your office, did he?

A. Yes, sir.

Q. How far do you live from 526 South Division?

A. Well, it is a short distance, I do not know just how far.

Q. Few minutes' walk?

351 A. Two or three minutes' walk.

Q. Did you go immediately to the premises?

A. I did.

Q. Tell the jury what you saw there?

A. I saw a lady lying on the floor, in a pool of blood?

Q. You went into the rear of the premises?

A. Yes, sir; I went around on the west side, in the back door; saw a lady lying on the floor in a pool of blood. Head towards the stove, at that time, on the back. I stepped up to her, picked up her head, spoke to her and discovered that she was unconscious, at the same time discovered blood flowing from several wounds in the head. 352

Q. Did you make any examination there at the time?

A. Slight examination, no thorough examination.

Q. Discovered these wounds?

A. Discovered these wounds and fracture of the skull, the brain substance, etc. 353

Q. What did you then do? Did you go out of the house or remain there?

A. I remained there; why I went out and in several times; put her onto the bed, that was the next thing.

Q. What is that?

A. Assisted her onto the bed, that is the next thing.

Q. Did you go out and look for a policeman?

A. No, a policeman went in with me. I went in and looked into the house, and then I went in there with a policeman and another gentleman. 354

Q. Did you assist her upon the bed?

A. I did; yes, sir.

Q. Who helped you?

A. Nobody.

Q. What examination did you make; how much blood was there on the floor?

A. There was quite a good deal; all surrounded in blood. 355

Q. Where else did you see blood except this pool she was lying in?

A. There was blood spattered all over the floor for quite a distance around.

Q. Did you notice any blood up in the corner?

A. No, sir, not till after she was carried—went into the bed-room, she threw her hand up onto the wall and left a blood mark there.

356 Q. Whereabouts on the wall did she put her hand?

A. Well, just before entering the bed-room door.

Q. Which side of the door, towards the street, or—

A. No, it was on the north side of the door.

Q. Towards the back part of the house?

A. I do not understand that diagram there.

Q. I will see if I can make you understand it; this is the stoop that you went up on, Doctor?

A. No, sir, I went in on the north side.

Q. Side of the barn?

357 A. Side of the barn.

Q. There is a rear door?

A. Yes, sir.

Q. Here is the barn; this is the lot line; you went around here in that back door?

A. Yes, sir.

Q. Went through this room into where the stove was?

A. Yes, sir.

358 Q. Found her lying there; there is the stove, see?

A. Yes, sir.

Q. Whereabouts in this room did you see her lying?

A. Well, about where the letter "A" is.

Q. Head which way?

A. Towards the stove.

Q. The pool of blood about where?

A. Well, the pool of blood was all around there.

Q. How far around her was the blood; spattered
359 blood?

A. It was quite a large spot, I do not know; I did not pay any particular attention.

Q. Was it fresh blood?

A. Yes, sir.

Q. And the blood upon her was fresh?

A. Yes, sir.

Q. You picked her up, yourself?

A. Well, she was—after I roused her up she began to try to help herself, and struggled and was moaning 360 all the time, and with what assistance she could give me, that was the way I got her onto the bed.

Q. Did you notice this pool of blood by the chair, near the door-way, on the floor?

A. No, sir; I did not.

Q. You do not know how that came there?

A. No, sir.

Q. You found a bed in this room?

A. Yes, sir.

Q. Did it have the appearance of having been oc- 361 cupied?

A. It did.

Q. After you got her in the room and upon the bed, what examination, if any, did you make?

A. I made a little further examination of the skull and discovered there was complicated fracture and quite a number of wounds which had been made apparently by some instrument with a sharp edge.

Q. After you got her on the bed and made this cursory examination, did any officer come in? 362

A. Yes, sir.

Q. Who was it?

A. Well, I did not know at the time.

Q. Mr. Kenny?

A. It was Kenny; yes, sir.

Q. Doorman?

A. Doorman Kenny.

Q. You may state what the condition of the room was; about the table, and what was on the floor, 363 broken, if anything?

A. The table was lying between her, where she was lying, and the door on the east side of the house up—turned over, bottom side up; dishes broken and breakfast on the stove apparently undisturbed, griddle off, chairs tipped over, and general confusion all around.

Q. Did you see any implement there upon the floor?

364 A. Well, the officer and I afterwards made a search, and he found an instrument on the floor.

Q. Did you see him take it up?

A. I saw him when he found it; yes, sir.

Q. What was it?

A. It was a hatchet.

Q. What was near the hatchet, if anything, did you see, when he picked it up?

A. Well, it was covered up, I think, or rolled up in a cloth; it was covered up at least.

365 Q. Where was it in this room that you saw him him pick it up?

A. It was somewhere, I should judge near that spot of blood on the north side there, somewhere in that neighborhood.

Q. Somewhere near the spot of blood near the chair upon the rear portion of this room?

A. I should think so.

Q. Was there blood upon it?

A. Yes, sir.

366 Q. Look at that hatchet and see if that is the hatchet, if it has the appearance of the hatchet that you—— (Counsel shows hatchet to witness.)

A. It does.

Q. How do you identify it?

A. By my mark.

Q. Where did you mark it?

A. There; I cut that notch.

Q. You cut that notch immediately below the blade there?

367 A. Yes, sir.

Q. How much blood was there on the hatchet?

A. Well, a good deal more than it has the appearance now of having had on it.

Q. There is marks of blood on it now, are there?

A. Yes, sir.

Mr. Quinby: I wish to exhibit the implement to the jury. (Exhibits hatchet to jury.)

Q. How long after you found the hatchet before the ambulance came? 368

A. I can not hardly tell.

Q. How long had intervened from the time you got there and put the woman on the bed, before the ambulance came?

A. I do not think it was over twenty minutes.

Q. Who came with the ambulance?

A. It is the student there at the Fitch——

Q. Young Corlett?

A. Yes, sir; Mr. Corlett. 369

Q. Did you go to the Fitch Hospital?

A. I did.

Q. Did you see the operation there, of Dr. Park?

A. I saw part of it.

Q. How?

A. Part of the operation; yes, sir.

Q. Did you see the taking out of the bone?

A. No, I did not.

Q. Did you say that you saw Hort there, himself, the defendant? 370

A. Yes, sir.

Q. Where did you see him?

A. I saw him when he entered the yard with Officer O'Neil; I did not know him though, at the time.

Q. You know him now?

A. I do; yes, sir.

Q. What did O'Neil do with him? Did he bring him into the room?

A. He took him into the room; yes, sir. 371

Q. You noticed him at the time?

A. Yes, sir.

Q. What was his condition as to sobriety?

A. Why, I—I thought he was sober enough.

Q. Did he look apparently sober?

A. He did.

Q. What was said then, if anything?

A. Why, I did not say anything to him.

372 Q. What did you hear, if anything, or notice?

A. The officer told him he had made a good job of it, but he did not say anything; I do not think he said a word.

Q. You do not think he said anything?

A. I think not.

Q. What else did he say? What else did the officer say to him, if anything?

A. Well, nothing that I remember of now.

Q. Is that all that occurred there?

373 A. That is all that I think of.

Q. How long was he in the room? The defendant and the officer, O'Neil?

A. Well, it couldn't have been more than two minutes at the outside.

Q. The officer then removed him?

A. Removed him; yes, sir.

Q. Did you notice anything on his hands?

A. I did not.

Q. You did not notice his hands?

374 A. No, I did not notice his hands.

Q. This cloth that you speak of, did you notice that cloth?

A. The one that the hatchet was——

Q. Yes, wrapped up in?

A. I noticed it, but I could not give any description.

Q. Blood upon the cloth?

A. Yes, sir; there was blood upon the cloth.

375 Q. What was the appearance of the cloth?

A. It was a soiled cloth, and there was blood on it, and that is all I know about it.

Q. Did you notice any handkerchief in the room?

A. I did not. I do not think I noticed anything of the kind.

Cross-examination by Mr. Sickmon:

Q. When you saw this cloth lying by the chair in 376 the first place, you could see the blood on it, could you not?

A. Well, I had not noticed that, not until the officer picked it up.

Q. The cloth lay over the hatchet?

A. Well, over it, or wrapped up in it; I do not know just how it was.

Q. You do not mean to say that the hatchet was wrapped up in the cloth?

A. I can not say; I do not know; it was concealed 377 by the cloth, or under it in some way.

Q. The cloth lay over the hatchet, that is all that you can say in relation to it, is it not?

A. That hatchet was concealed with cloth, I do not know how it was.

Q. There was blood on the cloth that you could see before picking up the hatchet?

A. No, I did not see it, not till after it was picked up. 378

Q. You did not see the hatchet nor the cloth there until it was picked up, did you?

A. As he picked it up, he was just raising it from the floor as he directed my attention to it.

Q. He had picked up the handkerchief then, had he not?

A. I do not know; I did not see any handkerchief that I remember about.

Q. This cloth, he picked that up before he picked up the hatchet, did he not? 379

A. Yes, sir—no, he picked up the hatchet and cloth together, if I remember right.

Q. Are you positive in relation to that?

A. No.

Q. All that you can say in relation to it was, that this cloth, whatever it was, lay over the hatchet?

A. It concealed the hatchet—the hatchet was concealed by the cloth.

380 Q. Lay over it—covered it?

A. I do not know whether it was over it or wound up in it; I can not say.

Q. The hatchet was not on top of the cloth, was it?

A. No.

Q. Then the cloth was on top of the hatchet? How long were you down at the house?

A. Why, I could hardly tell, perhaps half an hour.

Q. You saw Kemmler when he was brought in?

381 A. I did.

Q. He had the appearance of a man who had been drinking, did he not?

A. Well, I did not notice anything of the kind.

Q. What is that?

A. I did not see anything that indicated it.

Q. You did not notice to see, did you?

A. I looked him over a little bit.

Q. He did not have any conversation with any of you, did he?

A. No, sir; said nothing.

382 Q. Nor seemed to pay much attention to what was going on?

A. No apparent attention: no, sir.

Q. Did the officer have hold of him?

A. No.

Q. What did he do while the officer had him there?

A. Stood by the door.

Q. Said nothing to anybody?

383 A. Nothing to no one.

Q. Nor paid any particular attention to what you or the officer were doing?

A. I thought not.

Re-direct examination by Mr. Quinby:

Q. Was not anything to pay attention to except you talking there, was there?

A. Why, we— 384
Q. You were there two minutes, you say?
A. A short time.

Re-cross examination by Mr. Sickmon.

Q. How long do you say the officer was there with Hort?

A. It don't seem as though it could have been over two minutes, I am not positive in regard to that.

Q. Did you speak to Hort? 385

A. No, sir; I did not.

Q. Nobody spoke to him but the officer?

A. No one that I know of; I did not notice.

Q. Did he speak to him more than once?

A. I think not; not that I noticed, at least.

ROBERT E. KINNEY, sworn for the people.

Direct examination by Mr. Quinby: 386

Q. You are a member of the Police force of the City of Buffalo?

A. Yes, sir.

Q. Connected with Precinct No. 2?

A. Yes, sir.

Q. Occupying position of doorman there, and were on the 29th day of March last?

A. Yes, sir.

Q. Have you seen this man Kemmler, the defendant, before? 387

A. Yes, sir.

Q. Where did you first see him on the 29th day?

A. I see him coming out of the yard of 526 South Division street.

Q. With whom, if any person?

A. Officer O'Neil.

Q. Did you go with him to the station-house, with O'Neil?

388 A. No, sir.

Q. Where did you go?

A. I went into the rooms.

Q. You went into the rear of the premises, did you?

A. Yes, sir.

Q. Which way did you go in; side of the barn or—

A. On the side towards the barn.

Q. The barn way?

A. Yes, sir.

Q. What did you notice, if anything, after you got
389 into the house?

A. When I got in the house I saw Dr. Blackman in there and another man; I do not know who that was; I saw dishes lying on the floor, table topped over, blood—considerable blood on the floor, and then I saw a woman lying on the bed in the bed-room, and I believe then I asked the doctor what it amounted to—

390 Mr. Sickmon: I object.

Q. We will have to forego that, if you please, any conversation that you had with any person there. It is not evidence. Did you raise up the curtain to look at this woman?

A. I went into the room and it was kind of dark; there was a jacket, what looked like a jacket and an apron, catch on the window; that is, it was hung on by nails, and I took them down, and I saw the woman
391 lying on the bed; I didn't see much of her face—her face was turned away from me.

Q. Dr. Blackman was there?

A. He was there at the time; yes, sir. She was covered with blood.

Q. Did you find any implement there?

A. I did; yes, sir.

Q. (Counsel presents hatchet to witness.) Is that it?

A. That is the one, yes, sir.

Q. Now, Mr. Officer, I want to call your attention to this map for a moment, so that you may see. Here is the first portion of the map, represents the interior premises; here is where the barn is, this is South Division street. You came in by the way of the barn? 392

A. I did.

Q. In this rear door?

A. In the rear door.

Q. Which is here; then into this front room where the stove was?

A. I did. 393

Q. And here is the bed-room where the woman was lying. Now, here is a chair as you go into the room—there was a chair standing there?

A. Yes, sir.

Q. Point out, if you please, upon the map about where you found this hatchet?

A. This is the entrance into the bed-room.

Q. Yes, sir.

A. Found it back here.

Q. The hatchet was near the upper blood spot marked upon this map? 394

A. Yes, sir.

Q. Near the doorway going into the bed-room?

A. Yes, sir.

Q. About how far from the wall?

A. Oh, it was probably—

Q. The wall between that and the room you first entered?

A. A foot and a half from the wall; about a foot and a half, I should think. 395

Q Lying upon the floor?

A. Yes, sir.

Q. What was near it, over it or around it?

A. Well, there was what looked to be a towel laid partly over it.

Q. Did you pick it up, yourself?

A. I picked the—I picked up the—

396 Q. Did you see the hatchet before you took away the towel?

A. Oh, I see part of the handle; I didn't know really what it was at first, I see part of the handle.

Q. Was the hatchet done up in the towel?

A. No, the towel just merely laid on top of it.

Q. Laid on top of it?

A. Yes, sir, that is partly on top of it.

Q. What did you do with the towel?

A. I left the towel there.

397 Q. Was there blood upon the towel?

A. There was very little blood upon it, I noticed; yes.

Q. Did you find a handkerchief there, or see any?

A. I did not.

Q. Upon the floor or elsewhere?

A. I did not.

Q. Was there blood upon the hatchet?

A. Yes, sir.

398 Q. Did you make any search around the room to see what else was there?

A. Well, not after I found the hatchet; I looked around a little, before I saw that; I saw some knives laying on the floor, and I picked up the knife, and I think there was a fork from the table.

Q. Eating knife?

A. Yes, sir; eating knife.

Q. Used in family use?

A. Yes, sir.

399 Q. Lying among the broken dishes?

A. Lying among the dishes; yes, sir.

Q. Were you there when the ambulance came?

A. No, sir; well, that is, I was not in the house at the time the ambulance came, no, sir.

Cross-examination by Mr. Sickmon:

Q. What part of the hatchet was in view?

A. It was the end of the handle. 400

Q. About how much of it?

A. Oh, I should think there was an inch and a half or two of it.

Q. Before you picked it up, could you see blood on the towel?

A. I noticed, yes, I noticed a very little blood on the towel; there was not much blood on the towel.

Q. Was there any stain on the floor around the towel, at that point?

A. I think there was a little; in fact, there was 401 blood all around on the floor.

Q. The towel was simply dropped, lay over it; it was not wrapped up in it in any way?

A. No, it was not wrapped up in it.

HUGH MCKENNA, sworn for the people.

Direct-examination by Mr. Quinby:

402

Q. Where do you live?

A. 611 South Division street, where I lived at that time; I am living 314 Seneca now.

Q. Do you know the defendant, Kemmler?

A. I know him about four months, maybe a little longer.

Q. That is, you knew him four months prior to the day of this homicide—killing?

A. Yes, sir; about that.

Q. What is your business? 403

A. Plasterer.

Q. Were you in a saloon, Martin's saloon, on the 29th of March last?

A. I was there that morning; yes, sir.

Q. Martin's saloon is situated where?

A. Corner of Jefferson and South Division.

Q. Did you see Hort in there that morning, or Kemmler?

404 A. I did.

Q. What time did he come in?

A. About in the neighborhood of eight o'clock.

Q. Tell the jury what occurred in there?

A. Well, all that I heard or seen there, he came in that morning and asked for a glass of beer; Doctor—or not Dr. Blackman, but Mr. King;—I did not know the gentleman;—come in that morning right after him, and he demanded Martin, for humanity's sake, not to give him a glass of beer; Martin asked him
405 why, and he did not seem to care to tell at first, and then he said that his wife was home laying on the floor right after Kemmler leaving her that way, licked her; wanted to know if anybody would get a doctor; I told him if it was necessary, I would get one; I ran along on Swan street then, to our family doctor's, and he was on the point of going out; told me to go to Dr. Petit's; I went to Dr. Petit's; he was out; then I went up to Dr. Blackman's and I got Dr. Blackman.

Q. What did Kemmler say in there?

406 A. He didn't say anything.

Q. That you heard?

A. Only called for a glass of beer, and then after this gentleman said, told what he had done, he says, "Yes, I done it, and am willing to take the rope."

Q. "Willing to take the rope?"

A. That was all I heard; I run right out then for the doctor.

Q. You found the doctor; did you go with him to
407 the place?

A. I went over to the place and the doctor wouldn't go in until the officer came.

Q. Did you go in?

A. I went in with him; he asked me if I would go and telephone for the ambulance, and I went over to Thompson's coal-yard and he had no telephone, and then I went to Beck's brewery and telephoned from there.

Q. Did you then go back? 408

A. Didn't go back—I went back and stood in the yard until I saw her taken out.

Q. You saw Mrs. Hort taken out and put in the ambulance, and they drove away?

A. Yes, sir.

Q. When you looked in did you see anybody lying on the floor?

A. Yes; she was lying on the floor.

Q. Did you see Hort—was he sober that morning —Kemmler? 409

A. He appeared to me to be sober?

Cross-examination by Mr. Sickmon:

Q. Where did you first meet Mr. Kemmler?

A. The first time I ever see him there?

Q. Yes.

A. I met him in Martin's saloon. 410

Q. Did you see him frequently from that time down?

A. What is that?

Q. Did you see him frequently after that?

A. I would see him every other week, and maybe, I know, it is three weeks I wouldn't see him; used to meet him when I would be going to work mornings, and he would be getting ready to go out with a load or coming home nights.

Q. Did he drink considerable? 411

A. Not to my knowledge.

Q. How many times did you ever see him intoxicated?

A. I do not suppose I ever see him intoxicated, any more than taking a glass of beer, see he had a little, under the weather, once or twice, but he would always keep his feet.

Q. On such occasions, he talked queer, did he not?

412 A. A little queer once in a while.

Q. His talk was not coherent; it was rambling, was it not?

Mr. Quinby: Wait a minute, I object, that won't do.

The Court: No, that will not do.

Mr. Quinby: Let him describe it.

413

Mr. Sickmon: That is all.

JOHN DE BELLA, sworn for the people.

Direct-examination by Mr. Quinby:

Q. Where did you live De Bella on the 29th day of March, last?

A. Well, sir, I lived at 526 South Division.

414 Q. You lived with Hort?

A. Yes, sir.

Q. Or Kemmler?

A. Yes, sir.

Q. Were you employed by him at that time?

A. Yes, sir.

Q. What room did you occupy?

A. I occupied the room that leads off right back of the kitchen there, on the map, here; this is here
415 (witness indicating "D").

Q. Room "D" marked on the map?

A. Yes, sir; here is the kitchen right in here, and there is where Kemmler slept.

Q. Well, we have got that, room "D"?

A. Yes, sir.

Q. How long had you been working for the defendant?

A. Since about the first of the year, I should judge.

Q. Had you known him before that time? 416

A. Yes, sir.

Q. Where?

A. Oh, around the market.

Q. How long had you known him altogether?

A. About, somewhere around a year next July, or May, somewhere in there, I can't exactly say, June or July.

Q. What name did you know him by?

A. Well, I didn't know him nothing by then only "Philadelphia Billy," that was all I know. 417

Q. What other name?

A. Well, John. Hart. what he had the license out.

Q. John H-o-r-t?

A. H-a-r-t, he used to spell it.

Q. Were you in partnership with him?

A. Well, likely.

Q. What interest did you have in this business?

A. We used to share the profits.

Q. What was your business?

A. Huckster business—peddling. 418

Q. What portion of the property did you own in the business?

A. Just half of the profits.

Q. How many teams, horses and wagons did you have in the business?

A. I didn't have any.

Q. .Well, you and Hort together—Hort?

A. Three.

Q. Who owned those? 419

A. Mr. Hart.

Q. Any of them covered wagons?

A. Yes, sir.

Q. How many?

A. One.

Q. Where did you get your produce which you sold?

A. Oh, down around the market—in all different commission houses.

420 Q. Commission houses?

A. Yes, sir.

Q. Who did the buying?

A. Mr. Hart.

Q. And sell around through the city?

A. Yes, sir.

Q. Did you go with him?

A. Yes, sir

Q. On the same wagon?

A. Yes, sir.

421 Q. Who drove the other wagon?

A. A man by the name of Charles Spang drove one.

Q. Who drove the other?

A. It was not going, nobody drove it.

Q. Only two wagons?

A. Well, only two wagons running, but he had three horses and three wagons.

Q. When you and he would go out together what portion of the business did you do and what did he do?

422 A. Sell what we could.

Q. He would make sales?

A. He would make sales and I would make sales.

Q. Then what time did you usually get back to your place?

A. Well, depended all when we sold out; we used to get back sometimes four o'clock, sometimes six, sometimes eight.

Q. When did you share the profits of your business, daily or weekly?

423 A. Well, sometimes we used to share weekly, and sometimes daily, and sometimes every two days, according to when we had sold the stuff out.

Q. Who kept the figures?

A. Mr. Kemmler or Hart, whatever his name was.

Q. The defendant kept the account of the purchases and the sales?

A. Yes, sir.

Q. Had you been working on the 28th day of the month?

A. Yes, sir. 424

Q. Gone out together?

A. Yes, sir.

Q. What time did you get home that day?

A. About—I should judge it was half-past eight that night.

Q. That evening?

A. That evening; yes, sir.

Q. What time did you get up in the morning of the 29th?

A. I looked at the clock, glanced at it, and I thought it was ten minutes past seven, between ten and twelve minutes past seven, I couldn't exactly say. 425

Q. Where was the clock?

A. The clock is on the right side as I come in the door.

Q. The room that goes out towards the barn?

A. In the kitchen.

Q. In the kitchen?

A. Yes, sir.

Q. Was Kemmler up? 426

A. No, sir.

Q. Was his wife up?

A. Yes, sir.

Q. What was she doing?

A. She was fixing the fire, she was right down in front of the fire, and I walked right in and took my overcoat and walked out again—took my coat.

Q. What did you go to doing?

A. Cleaning the horses and feeding them, went out to the barn to do the barn work—chores. 427

Q. Did you see Hort that morning?

A. Yes, sir.

Q. About what time?

A. Well, he came out about fifteen minutes after I was out.

Q. Did he say anything to you?

A. Yes, sir.

428 Q. What did he say?

A. He says to me, "How much money did I count up last night?" I says, "Thirteen dollars and thirteen cents." He says, "Well, I counted it this morning and it was fourteen-thirteen." I says, "All right."

Q. Was he all right that morning, was he sober?

A. Oh, yes.

Q. How?

A. Same as any other morning.

Q. Well, was he sober?

429 A. Well, I do not know whether he was sober or not; I didn't look him in the face.

Q. Did he talk all right?

A. He talked all right, yes.

Q. Did he walk all right?

A. He walked all right.

Q. He was not staggering around there, drunk, was he?

A. No, sir. He was not staggering. He walked all right and talked all right.

430 Q. You did not observe anything out of the ordinary in his appearance?

A. No, I did not.

Q. Did you have any further talk with him that morning?

A. Yes, sir.

Q. What about; what was it; tell it?

A. I says to him the last thing I said to him——

Q. Did he go to work that morning, doing anything at all?

431 A. He came out right after I did, and commenced cleaning the horses off.

Q. Go ahead and tell the conversation?

A. I says to him, I says, "Billy, I guess I might as well put them eggs from one barrel into another," I says, "for we are liable to load apples today and be so much more room in the wagon." He says, "All right, I guess you better."

Q. "Load apples," is that the words you used? 432

A. How?

Q. Apples?

A. I says to him, "That we are liable to load apples," I says, "and we will have that much more room in the wagon."

Q. What did he say to you?

A. He says, "Yes," he says, "I guess you better put them from one barrel to another."

Q. Who else was there?

A. Dennis McMahon. 433

Q. Who is he?

A. I do not know who he is—little boy that used to work for Charles Spang.

Q. What was he doing there?

A. He worked for Charles Spang on the other wagon.

Q. He was in the employ of you people?

A. He was in the employ of Charles Spang.

Q. Did Spang have a wagon of his own? 434

A. No, sir.

Q. Spang run one of your wagons for you?

A. No, none of mine.

Q. One of Hort's?

A. One of Hort's, yes, sir.

Q. And this McMahon was in the employ of Spang who ran the other wagon?

A. Yes, sir.

Q. Who else was there besides the boy—Spang?

A. No, sir; Spang was not there that morning when Kemmler was out there. 435

Q. What other conversation did you have with the defendant after you got through, about transferring eggs?

A. Didn't say nothing else to him.

Q. What did he do?

A. I do not know what he did do.

Q. Did you see him?

436 A. I just left him and went into the wagon and commenced transferring the eggs.

Q. Where was this wagon standing?

A. Right facing the barn.

Q. In front of the doorway that enters into the barn?

A. Yes, sir; in front of the doorway.

Q. Was it up on the rise?

A. Yes, sir, the shaves were.

Q. The shaves were there?

437 A. Yes, sir.

Q. And as indicated upon the map?

A. Yes, sir.

Q. Was that a covered wagon or not?

A. That was a covered wagon.

Q. What was over the wagon?

A. What was over it?

Q. What constituted the cover?

A. Why, black canvass like, I guess, and wood, it was wood lined inside and then a black canvass over it.

438 Q. Open in the rear?

A. Open in the rear; yes, sir.

Q. And in front where the seat was, in front of the wagon it was open?

A. Yes, sir.

Q. You got up into this wagon and went to work?

A. Yes, sir.

Q. Doing what; what were you doing in the wagon?

A. Transferring eggs from one barrel into another and counting. 439

Q. Reaching over into the barrel?

A. Yes, sir.

Q. You did not notice where Hort went?

A. No, sir.

Q. Did he come up into the wagon with you?

A. No, sir.

Q. Did any person get up into the wagon?

A. Yes, sir.

Q. Who? 440

A. Dennis McMahon.

Q. To assist you?

A. Well, he came up to assist me—was not—no, I didn't want him to assist me, but he sat right down in front of me.

Q. Did you hear Kemmler say anything to Dennis McMahon?

A. No, sir.

Q. Now think a moment; anything about watering the horse? 441

A. Oh, yes, yes he did, he says, when Dennis has come in, he says, to Dennis, he says, "Guess you better water that black horse, Dennis"; "Well," I says, "I watered him," I interrupted him, and I says, "I watered him."

Q. When was the next time that you saw Hort after you went into the wagon?

A. When the policeman fetched him up the corner, the street. 442

Q. Did you hear any cry that morning from the house?

A. No, sir.

Q. You were in the wagon?

A. I was in the wagon.

Q. Did you see Hort start towards the house, before you—when you got up into the wagon, did you see what direction he was going?

A. No, sir, I did not.

Q. Did you hear any noise in the house? 443

A. Yes, sir; didn't know what house, where it was.

Q. What kind of a noise did you hear?

A. Oh, it was noise—pick up a chair and let it drop, you know, or anything like that.

Q. Something fell?

A. Little sound, yes; something fell, like.

Q. Did anybody call your attention to anything there that morning, when you were packing the eggs?

444 A. Dennis says to me—

Q. I do not want what he says; did this man Dennis call your attention to something?

A. Yes, sir.

Q. How long had you been in the wagon?

A. Oh, I should judge about half an hour or more.

Q. After Dennis spoke to you what did you do?

A. I kept on with my work.

Q. What did you finally do; did you stay in the
445 wagon up to this time, or did you get out of that wagon sometime that morning?

A. Oh, I got out when I got down.

Q. When you got out where did you go?

A. In the barn.

Q. Then where did you go? did you go into the house?

A. After I got through with my work and cleaned my clothes off, then I started in the house for my breakfast.

Q. What did you discover when you got into the
446 house for your breakfast?

A. Mrs. Hart lying on the floor.

Q. Which way did you go into the house?

A. The door where the barn is, always do.

Q. Who was in the room besides Mrs. Hort—as you call her—lying on the floor?

A. I didn't see nobody.

Q. She was alone?

A. She was alone.

447 Q. Where was she lying?

A. Right in front—almost in front of the door—with her head right up to the kitchen—her head right up to the stove, rather.

Q. Now, I want you to be particular about this, sir; there is a stove?

A. Yes.

Q. You come in through this door by the barn?

A. Yes, sir.

Q. And through the room "C" as indicated upon this map, into the kitchen? 448

A. I didn't go into the kitchen.

Q. Did you stand in the doorway?

A. I stood right in the doorway.

Q. Whereabouts; here is the stove; this at the right is the door that enters out upon the stoop?

A. Yes.

Q. Now, tell the jury as near as you can locate it, where you saw the body?

A. Head was just about here. 449

Q. Near the blood spot, near the stove?

A. Yes; just about right there by the stove.

Q. Was her head toward you?

A. No, sir; right toward the stove.

Q. Head was toward the stove?

A. Yes, sir.

Q. Did she make any noise?

A. No, sir.

Q. How was she lying upon the floor? 450

A. She was lying this way, with her arm that way, out like that.

Q. She was lying upon her—which arm?

A. Left arm.

Q. Upon her left arm?

A. Yes, sir.

Q. With her head upon the arm upon the floor?

A. Well, just like that. (Witness indicating).

Q. Hands stretched out?

A. Hands stretched out. 451

Q. Did you notice anything about the table at that time?

A. The table was upset right at her back, right like that.

Q. And the dishes; any dishes upon the floor?

A. I noticed they were all spread around there; I didn't pay particular attention to that.

Q. Did you make any outcry?

452 A. No.

Q. How long did you stand there looking at this woman?

A. Just long enough to open the door and shut it again.

Q. Then what did you do?

A. Run out.

Q. Did you make any outcry?

A. I asked Dennis, I says—

Q. I do not ask you; did you make some call?

453 A. I just—yes.

Q. Now, your conversation with Dennis I do not want; did you then go anywhere?

A. Went to Mrs. Reid's back door and knocked at the door.

Q. You said something to her?

A. Nobody came.

Q. Well, what did you do then?

A. Told Dennis to go around to the front door and 454 ring the front door bell.

Q. Did you see the doctor coming there?

A. Yes, sir.

Q. Was that after he had gone around to ring the front door bell?

A. Yes, just right—when I went to Mrs. Reid's back door and knocked at the back door, why, I went to walk out, and there was that fellow just up here before me; I don't know where he is now; well, he was just coming in the yard, and this doctor right 455 here along back of you. (Witness indicating Dr. Blackman).

Q. Did you see the policeman afterwards come?

A. I see the policeman coming with Hart, up the street.

Q. With Hort?

A. Yes, sir.

Q. Did you say anything to Hort?

A. No, sir.

Q. Did you see Mrs. Hort that morning? 456

A. Yes, sir.

Q. After you went out to take care of your horse?

A. No, sir.

Q. Did she not come out doors for something that morning?

A. Yes, sir.

Q. That is what I ask you; how long after you had gone out before she came out?

A. I heard her out there about a half an hour after I was out, I should judge, somewhere around there. 457

Q. Did you see her?

A. No, sir.

Q. Did you hear her voice?

A. Yes, sir.

Q. Did you hear her say—did you distinguish what she said?

A. Yes, sir.

Q. Tell us what you heard her say, and to whom she said it to?

A. To Dennis; that she wanted some eggs. 458

Q. Who came and got the eggs, if you know?

A. Kemmler went out from the barn and jumped into the wagon and gave her the eggs.

Q. Did you see that?

A. No, sir; seen him walk out, out of the barn.

Q. After her voice, he came out of the barn?

A. Yes; he went out of the barn; I seen him.

Q. You may state, Mr. De Bella, if you ever heard any conversation between Hort and his wife, and if so when, about going back to Philadelphia? 459

A. Yes, sir.

Q. Tell the jury when it was, as near as you can place the last one?

A. I should judge about three or four days before the 29th.

Q. What was it?

460 Mr. Sickmon: I object; incompetent and immaterial.

The Court: Go on.

Mr. Sickmon: Exception.

Q. Tell what there was about that?

A. Why, said that she was not going to live with a man like—a drunken man, she was going down to Philadelphia.

461 Q. Who did she tell that to?

A. Said it to him.

Q. What did she say to it?

A. Did not say anything.

Q. What did he say to you the next morning, about it?

A. He didn't say to me that next morning about it. Didn't say nothing.

Q. You were sworn before the coroner's jury, were

462 you not?

A. Yes, sir.

Q. You told the truth there, did you?

A. Yes, sir.

Q. Well, I want to call you attention. Do you recollect an occasion when she told him that she was going to Philadelphia.

A. No, she never told me that she was going to Philadelphia.

Q. Did Hort ever tell you anything about her

463 wanting to go to Philadelphia?

A. Why, he says to me that—

Q. When was it, let's fix that time?

A. I can not say.

Q. About how long before this killing?

A. I do not know; a week probably. Six or seven days.

Q. What did he say to you?

A. He says—

Mr. Sickmon: I object to that. 464

A. "She wants me to go to Philadelphia and when I want to go she don't want to go;" that is what he said, says, "Women a'hell;" he says, "She wanted to go to Philadelphia; when I want to, she don't want to go;" and he says, "that is the way it is."

Q. Do you remember of one night in particular about hearing talking in their room?

A. Yes, sir.

Q. How long before that, before this killing was that, De Bella? 465

A. Oh, I don't. About ten days, I guess.

Q. What time did you go to bed that night I speak of?

A. Well, I came home at eleven o'clock, I was to the show.

Q. Theatre?

A. Yes, sir: I went to bed.

Q. What did you hear—could you hear from their room into yours? 466

A. Well, no, I just heard a wrangling, "O-o-o-" like that; I heard the woman say, one time "Oh you,"— something like that, you know.

The Court: Strike out all this last answer.

Q. This night in question, did you hear him talking through the night? 467

A. I heard them—

Q. No, pay attention to my question; you came home and went to bed about eleven o'clock?

A. Yes, or half past.

Q. Did you hear them talking between themselves at any time during that night?

A. I heard a voice; yes, sir; heard voices.

Q. Could you tell what they were talking about?

468 A. No, sir.

Q. How long did it continue?

A. All night long; once in a while I would wake up and then I would hear them; continued all night long.

Q. Did you speak to him about this conversation the next morning?

A. He says to me, "I guess you didn't sleep much last night," and I says, "Yes, I could sleep if there was a cannon over my head."

469 Q. You said so?

A. Yes, sir.

Q. What did he say further?

A. That was the morning he says to me, "She wants me to go to Philadelphia. When I want to go she don't want to go," that was the time he said.

Q. That was the time he said, "Women were hell"?

A. Yes, sir.

Q. He called you "yellow," did he not?

A. Yes, sir.

470 Q. That was your nickname?

A. That was my nickname; yes, sir.

Q. You had some talk with him—I ask you, did you have some talk with him when he used an expression "Putting him in the hole"?

A. Yes, he said to me——

Q. Now wait a minute; when was it as to the time of this killing?

A. I believe it was that Monday.

471 Q. The Monday before the——

A. Yes.

Q. The killing was on Friday?

A. I do not know.

Q. Friday morning?

A. I think it was; I do not know.

Q. Now, tell what time of day, when and where were you?

A. Oh, it was about half-past eight that night, in the saloon, right corner of Eagle and Jefferson.

Q. Eagle and Jefferson? 472
A. Yes, sir.
Q. You had been out together that day?
A. We had been out together that day.
Q. What did he say to that?
A. Stopped and had a glass of beer, and he says to me——

Mr. Sickmon: To that I object as incompetent and immaterial.

The Court: Strike out the "glass of beer" business. 473

Q. Now, De Bella, if you will just be kind enough to leave out your beer and your cigars in this case.
A. Yes, well he——
Q. You went into this saloon together?

Mr. Sickmon: Give us an exception.

474

A. Yes, sir.

The Court: Do you object to what he said?

Mr. Sickmon: Yes, sir.

The Court: He may answer—go on.

Mr. Sickmon: Give us an exception.

Q. What did he say to that?

475

Mr. Sickmon: In relation to this man's putting him in a hole, that is what he is enquiring about, the conversation wherein the defendant stated to this man that he was putting him in a hole; I object to it as incompetent and immaterial.

The Court: Can hardly tell what there is of it until we get something more than that.

476 Mr. Sickmon: He said that he was going to enquire in relation to that.

The Court: Go on, Mr. District Attorney; we will see what there is of it.

Mr. Sickmon: Give us an exception.

Q. Go on and tell the conversation that you had with him on this occasion? 477

A. Oh, he says to me, in a kind of a low voice, says, "You put me in the hole, and I am blamed if you put me in the hole any more."

Q. What did you say to that?

A. Didn't say anything; I asked him, well, I says to him, "Tell me how I am putting you in the hole?" says "I would like to find out."

Q. What did he say to that?

A. Didn't say nothing. Oh, he says, "You know as well as I know." When I would ask him anything, 478 he would say "Oh, you know as well as I know." Now, I couldn't get head or tail of what he said or what he——

Q. I didn't ask you that, what you could get. The last he said, "You know as well as I do"?

A. Yes.

Mr. Sickmon: Now, I ask to strike that testimony out.

479

The Court: How is that—competent, Mr. Dristrict Attorney?

Mr. Quinby: Well, it goes towards the idea that may be pertinent in this case, that the defendant was jealous of this man, and that is what he said when he said he was "putting him in the hole;" it goes to the question of motive.

Mr. Sickmon: More likely referred to their partnership business. 480

The Court: No, I think any other inference is just as fair to be drawn from this language as that. Strike out the evidence. Gentlemen of the Jury, you will disregard it entirely when you come to consider this case; it has nothing to do with it.

Q. Did he ever tell you anything about his former life in Philadelphia? 481

A. Yes.

Q. What did he say?

Mr. Sickmon: I object to that as incompetent and immaterial.

The Court: Well, I think that may be competent, Mr. Sickmon.

Mr. Sickmon: Give us an exception. 482

A. He says he was always good down in Philadelphia; never done wrong to nobody, keep a talking like that to me. Say he was always good——

Q. Did he say anything—what I want—about coming to Buffalo with Matilda Ziegler?

A. No.

Q. This woman. How many hatchets did you see around the premises?

A. Oh, I presume there was four or five, I guess, five or six. 483

Q. Did you keep any in the barn?

A. Yes, sir.

Q. How many?

A. Two, sometimes there was three in there.

Q. Used them to open your ——

A. Open barrels and boxes of eggs and——

Q. Was there any kept in the house?

484 A. Yes, sir.

Q. Whereabouts in the house?

A. A little cupboard: I should think it was a orange box cupboard.

Q. In what room?

A. In the kitchen.

Cross-examination, by Mr. Sickmon.

485 Q. How long have you lived in Buffalo, Mr. De Bella?

A. Well, I will be in Buffalo two years the 9th of next July.

Q. Where did you live prior to that?

A. New Haven, Connecticut.

Q. Where where you born?

A. New Haven, Connecticut.

Q. Had you always resided there until you came

486 to Buffalo?

A. Until I came to Buffalo; yes, sir.

Q. What had been your business prior to coming to Buffalo?

A. Oh, I worked for commission men.

Q. Huckster business had been your business before that?

A. Yes, sir.

Q. How long had you been in partnership with the defendant?

487 A. I worked from about since the first of the year; him and I went to work together.

Q. First of January?

A. Somewhere around there, yes.

Q. What had you been doing before you went to work for the defendant?

A. Peddling.

Q. Did you have a horse?

A. I used to hire one.

Q. Used to hire a horse? 488

A. Yes, sir; horse and wagon.

Q. What time did you get home the night before the killing?

A. About half-past eight.

Q. Did you stop at any place—any saloon before you came home?

A. Before we came home——?

Q. Yes.

A. Well, when we was out that afternoon, we stopped in a saloon all the afternoon. 489

Q. You had not been peddling that afternoon?

A. Well, no we hadn't been peddling that afternoon.

Q. What saloon did you stop at?

A. Over here on the corner of 7th and Court street.

Q. You got home about half-past eight, did you say?

A. Yes, just about half-past eight.

Q. What was Kemmler's condition when he came home as to being intoxicated? 490

A. Oh, he was pretty full.

Q. So that he staggered?

A. Yes.

Q. So that he talked at random?

Objected to by District Attorney.

The Court: That will not do.

491

Q. How did he talk, how was his conversation; was it coherent?

Mr. Quinby: I object.

The Court: He may describe it.

Q. Tell what his condition was; describe how he

492 acted; what he did when he came home the night before?

A. Why, when we got into the yard I handed him a bird cage and a bird into it, and he could hardly take that, and he went into the house, and I tended the horse, and I fetched out the light.

Q. Did he drink considerable?

A. Oh, yes, he drank a little.

Q. What had he been drinking that afternoon?

A. Beer.

493 Q. Anything else?

A. No, sir; not to my knowledge.

Q. Did he use much whiskey?

A. Yes, sir.

Q. Was that usually his drink?

A. Not usually; when he would take a drink of whiskey in the morning he would follow it up all day, and when he would take beer in the morning he would follow that up all day.

494 Q. Did he drink every day more or less?

A. Some days I have seen him that he didn't drink any beer or whiskey.

Q. Was it very often?

A. Oh, the soberest I ever kept him, was about a week—kept sober once, a week.

Q. That is the longest that he ever kept sober to your knowledge?

A. To my knowledge; what I mean by sober, by not drinking any beer or whiskey.

495 Q. About how often during the time that you were in partnership would he become intoxicated, how often during a week?

A. Oh, I could not say.

Q. Was it not pretty nearly every day except that week that you say that he did not drink anything?

A. Why, mostly every other saloon we would come to he would go in and get a glass of beer.

Q. He would get intoxicated more or less every day, would he not?

A. Oh, some days he would keep sober by drinking beer, and some days he would be so drunk, have to lift him in the wagon; something like that. 496

Q. Mornings when he got up: some mornings would he be entirely sober then?

A. I do not know whether he was sober; come out in the barn and we would fix up things just the same as ever. I could not tell whether he was sober or drunk.

Q. During all the time that you were in partnership with him did you board with them? 497

A. Not all the time.

Q. How long had you boarded with them?

A. Well, I went to board with him a week after I went to work for him.

Q. That was sometime in January?

A. Sometime in January, yes.

Q. And from that time until the 29th of March you boarded in the family?

A. Yes, sir. 498

Q. Was he always kind to her, was the defendant always kind to Mrs. Hort?

A. I do not know; how do you mean?

Q. Did you ever hear him ill-treat her or ill-use her?

A. Never used to say hardly anything, I never heard much words of kindness.

Q. Did you ever hear him use an unkind word to her?

A. Who, him? 499

Q. Yes, to her?

A. He never used to say anything to her when I was in there, to my knowledge.

Q. Did she to him?

A. Yes.

Q. What language did she use to him; what did she say; use to say to him?

A. Oh, I couldn't— I can't remember what he said to her or what she said to him.

500 Q. Can you not remember some things that she said to him when she was angry; tell us some things that she said to him?

A. When she was angry?

Q. Yes.

A. Oh, she would say he was rum-done, and fly around the house there like a—mad, you know, I suppose she was and she would begin hollering to him.

Q. What would she say to him?

A. She would say that he was rum-done and drink-
501 ing whiskey and like that.

Q. What else?

A. I do not know.

Q. Did she say that frequently to him, did she say that often to him?

A. Say it often?

Q. Yes.

A. I do not know.

Q. How many times did you hear her say that?

A. I could not say.

502 Q. A number of times?

A. I could not say that.

Q. Did she talk in a loud tone of voice?

A. Yes, sir; she would talk in a loud tone of voice.

Q. Appeared to be angry?

A. Yes.

Q. This night that you came home from the theater about eleven o'clock, who was doing the talking?

A. I do not know.

503 Q. Well, was it a man's voice or a woman's voice that you heard?

A. I just heard a wrangling, that was all: "O-o-o-o," like that; just like a hum.

Q. Was it a man or woman's voice?

A. I could not say.

Q. You did not hear a word that they said?

A. Only once I heard a bad word, that was all.

Q. Who said it?

A. I don't know. 504

Q. What was it you heard?

A. Why, bad word.

Q. What was it?

A. Talk—say "You son of a gun," like that, something.

Q. "Son of a gun?"

A. Yes—"Son of a bitch."

Q. Was it "Son of a gun" that you heard?

A. Well, I heard "Son of a bitch."

Q. Was that a woman's voice? 505

A. I don't know.

Q. How?

A. I couldn't tell.

Q. Can you not tell a woman's voice from a man's voice?

A. I couldn't between the room; I just heard the wrangling.

Q. Was it said in a loud tone of voice?

A. Well, I didn't take particular much attention to 506 it; only just I heard somebody say it; I don't know whether it was a woman or man, or either.

Q. Did you hear this or dream it?

A. I heard it.

Q. You can not tell whether it was a man's voice or a woman's voice?

A. No, sir; I can't.

Q. You can't tell whether any of this conversation was in a man's voice?

A. No, sir.

Q. Who was with you upon this afternoon of the 507 28th, at this saloon on the corner of Court and Seventh?

A. Charlie Spang and Kemmler and I.

Q. Anybody else?

A. Not in the saloon together—three together;—certainly there was more people in the saloon there.

Q. On Monday of that week was Kemmler intoxicated; the week of the murder?

508 A. He was drinking beer.

Q. Was he intoxicated that day?

A. Not as much as he was that night.

Q. Well, that night; was he on the night of Monday?

A. I don't say not—he was not drinking Monday night as much as he was Thursday night.

Q. Was he drunk Tuesday?

A. I couldn't say; I didn't take no notice.

509 Q. Was he Wednesday?

A. I don't know.

Re-direct examination by Mr. Quinby:

Q. You drank with him, did you not?

A. What say?

Q. What did you drink?

A. Oh, used to drink cider.

Q. Beer, too?

A. Well, since about a week before the 29th I commenced drinking beer. 510

Q. Beer was Kemmler's ordinary drink, was it not?

A. Well, he—if he would start on whiskey in the morning he would say he would have to drink whiskey all day, because he drank whiskey in the morning; if he drank beer, why, he would drink beer.

Q. On this evening of the 28th, Kemmler got out of the wagon, did he not?

A. Yes, he got out of the wagon.

511 Q. And went into the house?

A. I handed him the bird cage; yes.

Q. He took it into the house?

A. He took it into the house, yes; brought out the lamp.

Q. Brought out the lamp to you?

A. Yes, sir.

Q. Fixed up the—so that you could take care of the horses?

A. Yes, sir. 512

Q. After he brought out the lamp he went back into the house, or did he help you?

A. What say?

Q. Did he help you take care of the horses?

A. Yes, he fiddled around there a little.

Q. Then went into the house?

A. Then went into the house, him and I together.

Q. Have supper?

A. Yes, sir.

Q. Together? 513

A. Yes, sir.

Q. You say you have seen him so drunk that you would have to help him into the wagon?

A. Yes, sir.

Q. When was that?

A. Oh, I have—that was one time—two or three times—I don't know.

Q. Now, two or three times is easy enough to say; I ask you when, before this killing?

A. I couldn't say when it was. 514

Q. How long before?

A. I don't know.

Q Where were you?

A Up in—one place was up on West avenue.

Q. What time was it?

A. Oh, we went there; we was going to work about nine o'clock in the morning, him and I, and a little boy by the name of Mike McMahon—Mike—no, Mike—I don't know his name. 515

Q. I do not care about that.

A. Well, the three of us was in, he emptied two bottles of whiskey right in that place, and he was so drunk we had to take him—he wouldn't go out, it was kind of a stormy day and he thought it wouldn't be best to work.

Q. You stayed there all day and drank whiskey?

A. We stayed there all day and drank whiskey.

516 Q. You with him?

A. I drank cider, yes, sir.

Q. What was your condition?

A. Oh; my condition—we all drank; I didn't get drunk.

Q. Sure; if you drank cider all day. But you were all right?

A. Yes, sir.

Re-cross examination by Mr. Sickmon:

517

Q. You had to assist him into the wagon?

A. Yes, sir; Mike and I put him right into the wagon.

Q. Lay him down in the back part of it?

A. No, he sat there right on the seat.

Q. And you helped him out when he got home?

A. When he got home I unhitched the horses, and he was sitting in the wagon there like this (witness indicating). 518

Q. Asleep?

A. No, he was not asleep; he was stupid.

Q. Did you notice mornings whether he was—when he got up in the morning after he had been drinking, was he shaky; did his hands shake?

A. Oh, I have noticed him mornings that he would get up in the morning and he said he would feel so bad that he don't know what to do with himself, he would like to have a drink.

519 Q. Nervous?

A. Nervous; any man get up in the morning after drinking and he couldn't eat when he was drinking.

Q. Upon these occasions when he was drinking he couldn't eat?

A. No, he couldn't eat when he was drinking. I have seen him go days without eating a mouthful.

Re-direct examination by Mr. Quinby:

Q. You mean he couldn't eat his breakfast? 520

A. Couldn't eat his breakfast; couldn't eat any supper; I have seen him sit down at the table and get right up again.

Q. You have been through it yourself?

A. What say?

Q. You have had occasions when you couldn't eat your breakfast?

A. Never in my life; I could eat breakfast any morning.

Q. You drink cider. That doesn't affect you. That is all. 521

Re-cross examination by Mr. Sickmon:

Q. How many days when he was drinking——

Mr. Quinby: Wait a minute, I object to this see-sawing—they have had a chance at him three times; this is nothing I have called out. 522

The Court: You may ask him.

By Mr. Sickmon:

Q. You stated when he was drinking, he couldn't eat anything?

A. He couldn't eat nothing—no.

Q. How many times have you seen him go without eating anything? 523

A. I have seen him go four days without eating anything; three to four days.

Q. Drinking all this time?

A. Drinking; yes.

Q. Drinking whiskey?

A. Sometimes; just as I tell you; if he got up in the morning he would drink whiskey and he would keep it up.

524 Q. One day whiskey and another day beer?

A. Yes, sir.

Re-direct examination by Mr. Quinby:

Q. Let me see; where did you go to after this crime was committed?

A. Me?

Q. Yes.

525 A. Charlie Spang and I and Dennis McMahon——

Q. I did not ask you that, I asked you where you went to?

A. Oh; we went down Seneca street, down to the market.

Q. Where else did you go?

A. Well, after—I do not know where I went to after I left the market; I found myself asleep in Miller's barn.

Q. What Miller's barn?

526 A. George Miller, on Myrtle Avenue.

Q. How long did you stay in that barn?

A. I do not know how long I was there.

Q. The officer found you there?

A. No, sir.

Q. Where did the officer find you?

A. No officer found me at all. I went right to the station-house to——

Q. What were you doing in Miller's barn?

A. I fell asleep there.

527 Q. Been drinking?

A. Yes, I was drinking that day.

Q. You did get full that day, yourself?

A. That day, yes.

Q. In regard to this man going without eating four days—do you mean that, sir?

A. Do I mean it?

Q. Yes.

A. I seen him when he went without a mouthful for four days. 528
Q. You kept track of it, did you?
A. Yes, sir; I did.
Q. What did you keep track of it on?
A. My head.
Q. Watched him?
A. Yes.

Mr. Sickmon: Wait a moment, I object, he is their own witness. 529

The Court: But this is a subject you introduced here, he has a right to ask him about it.

Mr. Sickmon: Not with a view of impeaching the credibility of his witness.

The Court: No, no; it is not with a view of impeaching his credibility at all; it is a new subject you have examined him upon. 530

Mr. Sickmon: This is in answer to his own question.

The Court: You introduced this whole matter.

Mr. Sickmon: Give us an exception.

By Mr. Quinby:

531 Q. When was it that he went without eating for four days?
A. When was it? oh, when I first went to work for him, about a week after, when I first went to work for him; then the next week——
Q. Wait a minute; we will take that occasion; we do not want to be too rapid here; you went to work for him in July, 1888?

532 A I went to work for him around the first of the year, this year, 1889.

Q. In January?

A. Yes, sir.

Q. What day of the week was it did he stop eating?

A. What day of the week?

Q. Yes?

A. I can not say.

Q. How long had you been to work for him?

533 A. Since about the first of the year till the 29th of March.

Q. How long had you been to work for him before he stopped eating?

A. Well, I worked for him—we was working a week, then the next week he——

Q. Just a week?

A. Yes, sir.

Q. Were you in partnership with him at that time?

A. Well, just the same as when we left.

534 Q. And the next week he commenced not to eat; what day of the week did he commence?

A. I do not know what day of the week he commenced.

Q. About what day of the week?

A. I could not say.

Q. He ate no breakfast on the first day, of course?

A. He had no breakfast; he didn't eat any supper the night we came home.

535 Q. Wait a minute; what did you do that day, and where was your route this day when he did not eat anything?

A. We was out peddling.

Q. Where did you go?

A. Oh, around the city selling goods, eggs and butter.

Q. Did you have any luncheon that day, yourself, or dinner?

A. Yes. 536

Q. In the day time?

A. Yes, sir.

Q. Where.

A. Way out in Cold Springs.

Q. Where was the place?

A. It is—I couldn't say now.

Q. Oh, yes, tell us where the place was?

A. We used to stop every noon, and I couldn't exactly say.

Q. I am talking about this particular day? 537

A. Well, this particular day, eh?

Q. Yes, this particular day, eh; what is the man's name that kept the eating place?

Mr. Sickmon: To that I object.

The Court: I guess we will not go into the particulars, so much.

Mr. Quinby: It may be some importance, your Honor, to base the hypothetical question upon. 538

The Court: No, I guess not.

Mr. Sickmon: They couldn't contradict it, anyway.

Mr. Quinby: Do not pretend to contradict it; intend to go to the bottom of it, if the Court will let me.

The Court: I do not think you better spend much time on it. 539

Mr. Quinby: I can see very well, if I understand what is to happen in this case, that a hypothetical question based upon a fact of that nature would be of very serious importance.

The Court: Well, a hypothetical question based upon the fact as to where he got his dinner that day does not help anybody very much.

540 Mr. Quinby: No, the Court does not seem to appreciate what I am at.

The Court: Well, I guess I do not, probably.

Mr. Quinby: I ask the witness, for the purpose of showing that his recollection of three or four days is—and if he said that he got his dinner in a certain place, and this man did not eat any, I have a right to show that he is mistaken, by calling the proprietor of
541 that establishment, if I can.

The Court: Well, I will let you go on with it for a little while, but I think you better be pretty brief about it.

Mr. Sickmon: Give us an exception.

Mr. Quinby:

Q. Can you recollect where you got your dinner on
542 the particular day—your luncheon?
A. No, I can not; it is so long ago.
Q. Did Kemmler lunch with you that day?
A. Did he lunch with us?
Q. Yes, did he go in with you that day?
A. He went into the saloon, yes.
Q. He didn't eat anything?
A. I couldn't say whether he did or not.

543 Mr. Quinby: That is all.

Re-direct examination by Mr. Sickmon:

Q. Upon what occasion is this that you do not recollect whether he did or not. Now, during these four days that you say that he went without eating, did he eat with you when you lunched?
A. No, sir.

Q. When you took your lunch he did not eat anything? 544

A. No.

Re-direct examination by Mr. Quinby:

Q. I thought you said you did not know whether he ate anything or not that day?

A. That day I do not know.

Q. We are talking about this first day of the four-day fast? 545

A. The first day of the four-day fast?

Q. Yes, of the four-day fast that we are talking about?

A. The first time he did not eat anything; he didn't eat no supper, he was drunk that whole day, and he came home and didn't eat no supper, then he started fasting.

Q. Where did you go that evening?

A. I can't say. 546

Q. Did you go out of the house?

A. I do not remember.

Q. Did you go to bed that night?

A. Yes, sir.

Q. Do not know whether he ate anything before he went to bed or not, do you; you did not watch him; you were not watching Kemmler to find out whether he was eating anything or not, were you?

A. No, I was not watching him.

Q. So he might have eaten, and you not know anything about it? 547

A. After I went to bed he might have.

Re-cross-examination by Mr. Sickmon:

Q. He did not eat when the rest of the family ate?

A. No, sir.

Q. Are you in jail now?

548 A. What say?
Q. Are you kept in jail?
A. Yes, sir; I am kept in jail.
Q. As a witness for the people?
A. Yes, sir.
Q. How long have you been confined there?
A. Five weeks.

DENNIS MCMAHON, sworn for the people.

549 *Direct examination* by Mr. Quinby:

Q. How old are you?
A. Sixteen.
Q. Where do you live?
A. Swan street.
Q. Live with your folks there?
A. Yes, sir.
550 Q. What is your number?
A. 584.
Q. How far is that from where Kemmler used to live on South Division; how many minutes' walk?
A. About three, four.
Q. Did you use to work there—around?
A. Yes, sir; with Spang.
Q. Whom did you work for?
A. Spang.
Q. Spang worked for Hort?
551 A. Yes, sir.
Q. What did you do there?
A. I go with Spang and peddle.
Q. Spang had a wagon?
A. Yes, sir.
Q. Drive around and you would help him?
A. Yes, sir.
Q. How long did you work there?
A. About three weeks.

Q. How long had you known Kemmler here; Hort as you know him, or Hart? 552

A. About five months.

Q. How did you come to get acquainted with him?

A. One day I was standing over to Umlauf's grocery store, corner of Hamburg and Seneca; he says to me: "Do you want to make twenty-five cents?" I says "Yes;" he says "Come on with me."

Q. You got acquainted with him in that way? You remember the time this affair occurred down there, do you, Dennis? 553

A. Yes, sir.

Q. What time did you get there in the morning?

A. I got there about half past seven.

Q. What did you go to doing?

A. I walked in the yard and I guess Billy was cleaning his mustang.

Q. Who do you call Billy?

A. Or Mr. Hart, and he says to me, "Good morning;" I says, "Good morning, Billy;" he says, "Go and water your horse," and went in and cleaned the horse. 554

Q. What did De Bella say when he told you to go and water the horse?

A. Nothing, as I know of.

Q. De Bella say that he had watered the horse already—do you recollect that?

A. No, sir.

Q. What else did Hort say to you that morning.

A. When I got through cleaning the horse, Mrs. Hart called me in the house and she says "That bird that Charlie Spang gave me don't sing;" she says "I will leave it here till he comes to-night and I will"— 555

Q. No, I did not ask you about what she said; after you watered the horse what did you go to doing?

A. She called me.

Q. You went into the house?

A. Yes, sir.

556 Q. How long were you in there?

A. About two minutes, three minutes.

Q. Did she send you for anything?

A. Yes, sir.

Q. What was it?

A. Five-cents' worth of fried-cakes and a loaf of bread.

Q. Did you start to go and get it?

A. Yes, sir; I went.

Q. Where was Hort at the time you went away,
557 did you notice?

A. In the barn.

Q. About how long were you gone?

A. Five minutes.

Q. After you came back did you go out into the yard again?

A. Sir?

Q. After you came back with the bread and the doughnuts, did you go into the barn again, or yard?

558 A. I went in the yard.

Q. Did you see Hort there?

A. Yes, sir.

Q. What was he doing?

A. He was in the barn or—

Q. What was he doing?

A. Fixing the barn door, I guess.

Q. What was he fixing to the barn door?

A. The hinge, I think it was the hinge; I know he was hammering at it.

559 Q. What was he hammering with?

A. I could not tell you.

Q. Did Mrs. Hort come out of the house?

A. Yes, she came to the door; she says to me, "Go and get me some eggs."

Q. What did you do?

A. I went to the barn and told Hart, Mrs. Hart wanted some eggs, so he got up in the wagon and filled a little basket.

Q. What did you do with them? 560

A. I gave them to Hart.

Q. Then what did you do; did you then get up in the wagon with DeBella?

A. Then I think Billy went in the—or Hart went
in the house. After this Hart went in the house and
before Hart went in the house Yellow says to him,
Yellow says to him, "Will I change them eggs into the
other barrel?" and Billy says, "Yes," and he changed
them in.—When Billy went in the house he got up in
the wagon and commenced changing the eggs in the 561
barrel and counting them, and I sat there.

Q. You sat by him?

A. Yes, sir.

Q. Hort had gone in the house?

A. Yes, sir.

Q. What is the first thing you heard from the house, if anything? Did you hear any noise?

A. Yes, sir.

Q. What did you hear? 562

A. Sounded like pot or dishes fell.

Q. How long after Hart went into the house before you heard the dishes fall?

A. About twenty minutes, I guess, about.

Q. You think it is about twenty minutes?

A. Something like that.

Q. What else did you hear from the house?

A. That is all.

Q. Did you hear any cries?

A. No, sir.

Q. Did you go to the window and look in? 563

A. After, then Yellow carried the barrels into the barn, empty barrels into the barn, and I says, "And get me a match, will you?" and he went in the house.

Q. Who went in the house?

A. Yellow; he says, "I will hand you one out through a broken pane of glass."

Q. Was there a broken pane of glass in this window that looks out from the kitchen?

564 A. Yes, sir, and a paper over it.

Q. What else?

A. And he says, "All right," and then he come running out; he says, "Look in the window; Mrs. Hart"—or he didn't say—

Q. Never mind what he said; he came out and said something to you?

A. Yes, sir.

Q. What did you do; did you go and look in the window.

565 A. After, I looked in the window.

Q. Did you look in the window that looks into the kitchen by the sewing machine.

A. Yes, sir.

Q. What did you see, if anything?

A. Seen a woman lying on the floor.

Q. Who was the woman?

A. Think it was Mrs. Hart.

Q. How was she lying, if you noticed?

A. Her head near the stove.

566 Q. How was her hands as to her head?

A. I didn't take much notice of her hands or—

Q. Did you see Hort in there?

A. No, sir.

Q. How long did you stand there looking in the window?

A. About three seconds. Then I went away and Yellow says to me, "Go and get"—

Q. Never mind. Did you go into the room afterwards?

567 A. When the policeman came.

Q. You went away somewhere after you looked in the window, did you?

A. To call Mrs. Reid, and she was not in, and I called this man next door.

Q. Did you see Hort there after you went to the call?

A. No, sir.

Q. Did you see him any time after he went in the house? 568

A. I see a policeman fetch him there. That is the only time.

Q. When the policeman brought him back that was the first time you saw him after you saw him go towards the house, that you have spoken of?

A. Yes, sir.

Thomas McMahon, sworn for the people. 569

Direct examination by Mr. Quinby:

Q. How old are you?

A. Fifteen years old.

Q. Is Dennis your brother?

A. Yes, sir.

Q. You know Kemmler?

A. Yes, sir.

Q. Were you working there at the time this woman was injured? 570

A. Yes, sir.

Q. What time did you get to work there that morning?

A. I left the house about ten minutes after seven, got over there about half past seven.

Q. Did you go with Dennis?

A. No, sir.

Q. Which got there first?

A. Dennis.

Q. What was Dennis doing when you got there, if you know? 571

A. Standing at the barn door.

Q. Did you see Kemmler there?

A. Yes, sir; he was coming from the barn to the house for breakfast.

Q. You did see him cleaning the horses, then?

A. No, sir.

572 Q. What did you go to doing, if anything?

A. I stood right at the barn, didn't do nothing.

Q. You saw him walking into the house?

A. Yes, sir.

Q. What did you continue doing after he went into the house?

A. I stood at the barn door, me and Dennis; I didn't do nothing.

Q. How is that, speak plainly, please?

573 A. Me and Dennis stood at the barn door; I didn't do nothing.

Q. Was De Bella there?

A. I didn't see De Bella.

Q. You do not know whether he was up in the wagon or not?

A. No, sir.

Q. Where was Dennis?

A. Dennis was standing at the barn door with me.

Q. Did you hear anything that morning after he went into the house?

574 A. About five or ten minutes after he went in the house I heard the sound as if dishes breaking.

Q. Five or ten minutes, you didn't have any watch there did you?

A. About five or ten minutes.

Q. You didn't have any watch there to keep track of it?

A. No, sir.

Q. You heard something fall?

575 A. Like a sound of dishes; yes, sir.

Q. Did you hear any cry of any voice?

A. No, sir.

Q. What else did you hear besides the fall of dishes?

A. Nothing.

Q. What did you do when you heard the fall of dishes?

A. I ran around to the side door.

Q. You what? 576

A. Ran around to the other door.

Q. On the other side of the house?

A. Yes, sir.

Q. That is where the stoop is?

A. On the western side of the house; yes, sir.

Q. What did you do there?

A. I seen him coming out with his hands with blood, stained with blood.

Q. You saw him coming out of this door that opens upon this stoop? 577

A. Yes, sir.

Q. Did you say anything to him?

A. I asked him was he going to load up the stuff this morning.

Q. Did he get out of the doorway or did he stand in the doorway?

A. He was coming out of the doorway.

Q. Did he get clear out of the door?

A Yes, sir.

Q. And you asked him if was going to load up the stuff that morning? 578

A. Yes, sir.

Q. To that did he make any reply?

A. He said "No."

Q. What else did you say to him?

A. I didn't say nothing then.

Q. What did you see him do?

A. He walked out into the street.

Q. Did you see a man go out with him—this man King? 579

A. No, sir.

Q. You didn't notice that?

A. No, sir.

Q. Where was the blood on his hands?

A. I could not tell you exactly where it was; he was wiping it off with a handkerchief.

Q. What was he doing with his hands?

580 A. Wiping them off with a handkerchief.

Q. He had a handkerchief wiping them?

A. Yes, sir; like that.

Q. Then you went around back of the house, again?

A. I went around and got up on the veranda and looked in on the stoop.

Q. You got up on the stoop and looked into this window?

A. Yes, sir.

581 Q. And what did you see?

A. I see Mrs. Hart lying on the floor with blood.

Q. What did you do then; wait a minute, did you see her moving?

A. No, sir.

Q. Then what did you do?

A. I went down South Division to Jefferson.

Q. Who with?

A. Myself.

582 Q. Where did you go?

A. I went—stood at Mr. Martin's saloon.

Q. Did you see Kemmler come there?

A. Yes, sir.

Q. Whom did he come with?

A. Kemmler came out of there.

Q. Kemmler came out of there, nobody with him?

A No, sir.

Q. Not as you saw. Did you have any talk with him?

583 A. He told me to go for a policeman.

Q. For a policeman?

A. Yes, sir.

Q. What else did he tell you?

A. That is all; I says "Yes."

Q. Was he wiping his hands at that time?

A. No, sir.

Q. Did you go and look for a policeman?

A. Yes, sir.

Q. Did you find any? 584

A. I went over as far as Anderson's drug store and told a man there, corner of Swan and Jefferson, and he called officer O'Neil. Officer O'Neil was coming up towards the West Shore freight house on Jefferson street.

Q. Did you see him arrested?

A. Yes, sir.

Q. And taken back to the house?

A. Yes, sir.

Q. You have been sworn before, have you not? 585

A. Yes, sir.

Q. Where; were you sworn before the coroner's jury?

A. Yes, sir.

Q. Were you sworn before the Grand Jury, in the other room?

A. Yes, sir.

Q. Let me call your attention a little to something; what did you hear Kemmler say at Martin's saloon, if anything? 586

A. He says, "I want to hang; the sooner the better; I want the rope, the sooner the better."

Q. "I want the rope, the sooner the better?"

A. Yes, sir.

Q. Let me call your attention to another thing; when you were there, before you went around the house and saw Hort coming out with his hands covered with blood, did you not hear any sound of voices in the house, about a trunk; does that refresh your memory any? 587

A. Oh, yes; he says "I want to open my trunk."

Q. That was after the dishes fell?

A. Before.

Q. After he had entered the house that morning?

A. That was after the dishes fell, I mean.

Q. Now, let us get this right; you were standing by this barn door, were you?

588 A. Yes, sir.

Q. And heard the dishes fall?

A. Yes, sir.

Q. Then you heard Hort say what?

A. "I want to open my trunk."

Q. "I want to open my trunk?"

A. Yes, sir.

Q. What did you hear her say, if anything?

A. I didn't hear her say nothing.

Q. Is that all now, you heard in the house?

589 A. Yes, sir.

Cross-examination by Mr. Sickmon:

Q. How long have you known Mr. Kemmler?

A. I know him about three months; four months.

Q. Had you worked for him that length of time?

A. No, sir.

590 Q. How long had you worked for him?

A. I worked for him about;—I didn't work for him, I worked for Charles Spang.

Q. You worked for Charlie Spang, the same man that your brother worked for?

A. Yes, sir.

Q. Did you use to see Mr. Hort frequently, at Kemmler's?

A. Yes, sir.

Q. Did your wagon travel the same route that their's did, sometimes?

591 A. No, I never met them when he was peddling.

Q. But you used to see him evenings?

A. Yes; not evenings; I see him in the morning.

Q. Is that all the time that you had seen him?

A. Yes, sir.

Q. You never saw him after you left the barn in the morning?

A. No, sir.

Q. Until the next morning? 592

A. Only down to market.

DANIEL E. BARRY, sworn for the people.

Direct-examination by Mr. Quinby:

Q. You are a member of the Buffalo Police force, Captain?

A. Yes, sir. 593

Q. What precinct are you Captain of?

A. Number Two.

Q. You recollect the morning of the 29th of March?

A. Yes, sir.

Q. About what time did you get any word at the police station of the affray?

A. I got word at police headquarters about quarter past nine.

Q. You got your news from police headquarters? 594

A. Yes, sir.

Q. What time did you get to the station house that morning?

A. Ten o'clock.

Q. So you were not there when—

A. No, sir.

Q. Was Kemmler there when you got there?

A. He was.

Q. Where was he when you first saw him?

A. He was locked up, in the cell department. 595

Q. Locked up in a cellar which you have for people? Did you go in and talk with him?

A. Yes, sir.

Q. Commence at the beginning; I will ask you, did you notice his personal appearance that morning?

A. Yes, sir.

Q. How was he, sober?

A. Yes, sir; he was.

596 Q. Now, tell the jury what took place between you and him?

A. I went into the cell department and he was sitting on that side of the cell; when I called him he came to the door, and I asked him if he wanted to make a statement: he said, no, he did not want to bother with it; that he had done it and was willing to take the rope for it; I asked him if he would tell me what he done it for, and he said he would not; he said that he would keep that to himself.

597 Q. And what else?

A. I told him that I thought he had better make a statement; he said no, that he wouldn't, that he did not want to fuss with it; didn't want any trial or anything of the kind; so I left him and went back into the office and a little while afterwards Mr. McKeogh came and said he wanted to see me, Mr. Kemmler, so I said bring him into the office; he came into the office and he started and made a statement.

Q. Who took it?

598 A. First, though, before he sent to me there was a picture of this lady and the child that I carried back into the cell, and asked him if that was his wife; he said no, it was not, it was Tillie Ziegler, of Philadelphia; then I telegraphed to headquarters.

Q. I do not care about that.

A. He came into the office and I got a statement from him.

Q. I show him the photograph, Your Honor,

599 marked "A" for identification:

Q. You presented that photograph to him, did you?

A. Yes, sir.

Q. And asked him if that was his wife?

A. Yes, sir.

Q. What reply did he make?

A. He said it was not.

Q. What did he say; did he say who it was—?

A. He said; I asked him who she was, he said it was Tillie Ziegler, of Philadelphia.

Q. What else did he say about her? 600

A. That is all he said.

Q. Who took this statement in writing?

A. Yes, sir.

Q. Who took it?

A. The doorman, Mr. McKeogh.

Q. Tell the jury how it was taken?

A. He sat down and commenced—the first thing, he said, he wanted to start from the beginning, and I told him that was right; he commenced, told about where he met this lady and what his business was in 601 Philadelphia, and finally he got to Buffalo.

Q. You let him tell his story?

A. Yes, sir.

Q. And McKeogh took his statement.? What was the man's name that you say took the statement?

A. McKeogh.

Q. And after it was taken was it read over to him?

A. Yes, sir.

Q. Who read it over? 602

A. I did; read it over twice.

Q. You read it over to him twice?

A. Yes, sir.

Q. And after you read it what did he say about its being correct, if anything?

A. He said it was correct.

Q. Did he then sign it?

A. He made that mark there.

Q. He made his mark there?

A. Yes, sir. 603

Q. And you signed it as a witness?

A. Yes, sir.

Q. "William Kemmler, his mark;" he put those two——

A. Those two marks there.

Q. Those two crosses there?

A. And there is the doorman's signature, and this is the other officer that listened to the reading of this statement.

604 Q. We do not care about that; you say you read it to him twice over?

A. Yes, sir.

Mr. Quinby: I desire to read this to the jury; perhaps they had better finish with the officer before I read it.

Mr. Sickmon: Yes.

605 Statement marked Exhibit No. 1.

By Mr. Quinby:

Q. Did you, subsequently to making the statement, see the defendant in jail?

A. Yes, sir.

Q. Who went with you, if anybody?

A. Mr. Kemmler's brother and the lady's father, Mr. Zeigler.

Q. That is the father of this dead woman?

606 A. Yes, sir.

Q. And the brother of the defendant?

A. And the brother of the defendant.

Q. When was that you went to the jail?

A. It was about eleven o'clock on the morning of the first day of April.

Q. Did you have a talk with him there, or did they, in which you were present?

A. They had conversation with him.

607 Q. Did you have one?

A. Yes, sir.

Q. Tell the jury what that conversation was?

A. I asked him if he would tell me what he did this for, and he said he would, and he went on and toid me.

Q. Tell us what he said?

A. He said it was jealous of this man Yellow, and owed it all to bad temper and jealousy; that he went into the barn that morning with a hatchet in his hand, 608 and without any words he hit her on the head.

Q. What else?

A. That is all.

Q. What did he say about any familiarity?

A. He said that he was jealous of the Yellow; he thought he was too familiar with Tillie; that is the very words he used.

Q. Thought that he was too familiar with Tillie, meaning——

A. Meaning Mrs. Hort or Zeigler. 609

Q. Was that the only conversation you had with him?

A. That was all; yes, sir.

Cross-examination by Mr. Hatch:

Q. How much whiskey did Kemmler drink, Captain, this morning before he made the statement?

A. Didn't drink any, not in the station-house.

Q. Did you not give him some whiskey there in the 610 station-house?

A. No, sir.

Q. Was there not any liquor given him there at all?

A. Yes, sir.

Q. Who gave it to him?

A. I gave him a glass of brandy.

Q. Then there was liquor given to him in the station-house? 611

A. Yes, sir.

Q. It was in a bottle, was it not?

Mr. Quinby: That was after the statement?

Mr. Hatch: No, just before the statement.

A. He got one glass of brandy before the statement, he was sick, he got that in the cell before he—

612 Mr. Hatch:

Q. Well, wait a moment; I did not ask you that; just wait; how much brandy in the glass?

A. Just a small glass of brandy.

Q. You had brandy in a bottle there, did you not?

A. We have got brandy in the station-house, yes, sir.

Q. You had it in a bottle in your office this morning, did you not?

613 A. Yes, sir.

Q. It was out of that bottle that he drank, was it not?

A. Yes, sir.

Q. Poured into a glass?

A. Yes, sir.

Q. How much liquor was there in the bottle?

A. Well, I do not know as I could tell now. I know just—

614 Q. It was a little over half full, was it not?

A. No, sir; it was not; I know that he had two glasses of brandy that day in No. 2 station.

Q. I have not asked you that at all; I asked you how much liquor there was in that bottle?

A. I do not know as I can state.

Q. Now, I ask you if it was over two-thirds full?

A. It was not.

Q. Was it half full?

A. I do not think it was.

615 Q. Well, what is your best recollection on that topic?

A. I say I do not think it was.

Q. Do you know how much there was in it?

A. Well, it was a small bottle.

Q. No, I do not ask you that?

A. Well, no, I do not know how much was in it.

Q. It was a pint bottle, was it not?

A. No, sir, it was not.

Q. Half pint bottle? 616

A. I don't know as it was that; I do not know how much it would hold; it was a small one anyway.

Q. Will it hold a half a pint?

A. I don't think it would; it might hold more.

Q. Will it hold a gill?

A. Yes.

Q. It will hold more than a gill, will it not?

A. It will hold more than a gill.

Q. How much more than a gill?

A. Well, I say I can not tell. 617

Q. You can approximate it, can you not?

A. I could not, it was a small bottle, but I do not know how much was in it.

Q. Well, it would hold a half a pint would it not, or more?

A. It probably would; I do not know, I say.

Q. And it was brandy?

A. It was brandy; yes, sir.

Q. Before you got him to make that statement, you gave him a drink of that, did you not? 618

A. Well, it was quite a while before that.

Q. Well, you gave him, before he made the statement, and while he was in your room, you gave him a drink of brandy, did you not?

A. No, sir; I gave him a glass, and do you want me to tell why he gave it to him?

Q. I want you to answer my question.

A. No, sir; I did not.

Q. Did you give him the brandy in your room. 619

A. I did give him one glass in—

Q. That answers it; after you gave him the one glass of brandy, then you got this statement out of him, did you not?

A. Sometime afterwards; yes, sir.

Q. You did not get the statement out of him before he had drank, did you?

A. No, sir.

620 Q. He would not tell you?

A. No, he didn't say.

Q. After you gave him the brandy then he did say, did he not?

A. Sometime afterwards, he said he wanted to see me.

Q. Now, Captain, the statement was made in your private office, was it not?

A. Yes, sir.

Q. At No. 2 station house?

621 A. Yes, sir.

Q. And before you say the statement was made he was sick?

A. He said he was sick.

Q. Describe his condition to this jury?

A. Well, I do not know as I really can; he said he was sick and felt bad, that is what he said.

Q. Did he tremble?

A. No, I do not think he did.

622 Q. Did he show any signs of mental disturbance of any kind?

A. No, sir.

Q. Perfectly cool and collected?

A. He seemed to be.

Q. But he just said he was sick?

A. He said he felt bad; was sick.

Q. And it was for that reason that you gave him the liquor?

A. Yes, sir.

623 Q. It was not to get him up to the point of making a statement to you; was it not?

A. No, sir, it was not; it was quite a while after.

Q. But it was because he was sick?

A. That is why I gave him that liquor; yes, sir.

Q. How much liquor did you think he drank in all there?

A. I do not think he drank over two glasses; that is small whiskey glasses.

Q. He drank all there was in the bottle, did he not? 624

A. No, sir; he did not.

Q. Who else was in that room?

A. The doorman was there.

Q. What is his name?

A. McKeough.

Q. He saw how much liquor he drank, did he?

A. Yes, sir.

Q. He was present all the time, and took down this statement from Kemmler as Kemmler gave it to you? 625

A. Yes, sir.

Q. You knew Kemmler could not read and write, did you not?

A. I did not know it; no, sir.

Q. Did he not tell you he could not read or write?

A. No, sir; he did not.

Q. Who read the statement to him?

A. I did. 626

Q. You read it over twice?

A. Over twice; yes, sir.

Q. There was not anything peculiar in his actions at all that morning, was there?

A. Nothing that I could notice, no, sir.

Q. You have known him before, Captain?

A. No, sir; never did.

Q. Did you see him immediately after the statement was taken at Number 1 station?

A. Number 2. 627

Q. Number 2?

A. Yes, sir.

Q. Or at Number 1?

A. Number 2.

Q. How long before he was taken to Number 1 station?

A. Right after that statement.

Q. That is what I asked you?

628 A. I do not understand.

Q. Did you see him at Number 1 after the statement was taken?

A. Yes, sir.

Q. Did you know of their sending out for liquor there, for him?

A. No, sir; I did not know.

Q. Did not know anything about that?

A. I didn't know it, no, sir.

Q. You saw him drinking no liquor there?

629 A. Not there; no, sir.

Q. He told everyone that talked with him about it that he was guilty of this offense, did he not?

A. Well, at Number 2 there didn't anybody see him but myself and the doorman, and that was in our office; no officers were allowed in at that time there, at all.

Q. At Number 1 station?

A. At Number 1 I could not say how many saw him.

630 Q. You did not go there with him?

A. I did; yes, sir.

Q. Did you hear any conversation between him and any men that were there?

A. No, sir; I didn't.

Q. Were you there when any physicians were called to see him?

A. Dr. Slacer was called—not to Number 1; no, sir.

631 Q. Was he called at Number 2?

A. No, sir.

Q. Did he see him at Number 2?

A. No, sir.

Q. Where did he see him?

A. Police headquarters.

Q. He saw him there, how long after the statement was made?

A. Right after it; he went right direct from my office to headquarters and Dr. Slacer was there.

Q. You say that you never knew this man until his arrest? 632

A. Never knew him: no sir; I did not.

Q. Did Dr. Phelps come down there?

A. I do not know—no, I didn't see Dr. Phelps there.

Q. Where was he taken at Number 1 headquarters?

A. Taken to the Superintendent's office.

Q. And it was there that Dr. Slacer made his examination, was it?

A. Well, I do not know, I left him there; Dr. Slacer sat there; and I went away, went out in the other office. 633

Q. Did you tell Kemmler at No. 2 station, that it would be better for him to make a statement?

A. No, sir; I do not think I did. I think that I asked him if he didn't want to make a statement.

Q. Did you not tell him it would be better for him to make a statement?

A. I do not think that I did; no, sir. 634

Q. It is usually your custom when a crime is committed to get the offender arrested to make a statement, is it not?

A. In such cases we are supposed——

Q. Well, in criminal cases?

A. Yes, sir.

Q. Larcenies, &c.; if you can get any statement you always do it, do you not, the first thing?

A. It is our duty to do it.

Q. You consider it so? 635

A. Well, it is.

Q. You do do it, do you not?

A. Yes, sir.

Q. But in this case you did not tell him it was better for him, or it would be any easier for him, did you, if he would make the statement?

A. No, sir; I am sure I did not say that.

Q. Did you say anything of that character?

636 A. No, sir; I do not think I did.

Q. Did you threaten him in any way?

A. No, sir.

Q. But he came in there and voluntarily made the statement?

A. Yes, sir, just as I said; he sent for me——

Q. Wait a moment, just answer the question; and when he got through you gave him another drink of liquor?

637 A. Yes, sir.

Q. There was not any one else in the room that drank anything, was there?

A. No, sir.

Q. Are you certain that there was any liquor left in that bottle?

A. I am certain there was; yes, sir.

Q. How much?

A. Well, there was quite a lot in the bottom of it, about I should say perhaps a half an inch from the bottom of it.

638 Q. That was left?

A. About that was left.

Q. After he had had two drinks?

A. Yes, sir.

Q. Did he have any more?

A. No, sir; he didn't, not in there.

Q. What kind of a glass was it poured in?

A. It was a whiskey glass, small glass.

639 *Re-direct examination* by Mr. Quinby:

Q. He was complaining, you say, something about himself and you gave him this liquor?

A. Yes, sir.

Mr. Quinby reads statement referred to, Exhibit No. One, to the jury, as follows:

Buffalo, N. Y., March 29, '89. 640

STATEMENT OF WILLIAM K. KEMMLER.

I am 28 years old; was born in Philadelphia, Pa.,
and at present reside in the rear part of house No. 526
South Division street, Buffalo, N. Y. About one year
an da half ago I left Philadelphia to come to Buffalo, and
a partly divorced woman named Tillie Ziegler coaxed
me to bring her with me; she has a four-year-old
child, and the three of us come to Buffalo, and Tillie
and myself started keeping house as man and wife 641
on Elk street, above Michigan. After living on Elk
street a short time we moved to the corner of Carroll and
Heacock streets. About six months ago we moved to the
rear part of house No. 526 South Division street. My
business is a peddler of produce, &c., and all winter
principally. Butter and eggs. My father and mother are
both dead. Since I came to Buffalo I have been
drinking considerable, and had more or less quarrels
with this woman Tillie. This morning, March 29th, 642
'89, between 7 and 8 o'clock, I struck Tillie on the
head with a hatchet—I don't know how many times—
with the intention of killing her. After striking her
this morning I went out and told the woman that
lives in the front part of the house—her name is Mrs.
Reed—that I had done it. I then went back to my
house and washed my hands. After doing this, I went
out to look for a police officer to tell him to lock me
up for what I had done, and on the way I stopped into
Tom Martin's, corner South Division and Jefferson 643
streets, to get glass of beer. I went from Martin's to
a saloon on Swan street, near Jefferson, and had a
glass of beer. I then went back to Martin's and asked
him where I could get a police officer, and told him
what I done, and said that I was going to the police
station and tell them what I had done if I could not
find an officer on the way, and while we were talking,
an officer came in and took me from there to my

644 house, and from there to the station-house. When I
got out of bed this morning, I washed myself and
went out and cleaned my horses. While I was clean-
ing the horse, Tillie came out to the barn and told the
boy she wanted some eggs, and the boy told me. I
then went and got the eggs and give them to her in a
basket out of the wagon. She went in the house with
the eggs. After giving her the eggs, I went to the
barn and fixed the stable door. I then walked into
the house with the hatchet in my hand that I fixed
645 the door with. I first got acquainted with Tillie on
Story street, Philadelphia, when I was peddling. I
used to sell her vegetables, and she got to be a custo-
mer. I sold her vegetables quite a few years, and she
used to find fault about her husband, saying that he
misused her and she was always sickly. Some morn-
ings when I called with vegetables she used to be up
stairs in bed, and I used to knock at the door and no
one answered, and I opened the door and walked in
646 and hollered, and she said come up. I started up to see
what she wanted, then she said to stay down; that she
did not want nothing that morning. While calling at
her house I had frequent connections with her after
moving from this house. This morning, March 29th,
'89, we talked over things. After going in the house
from the barn, Tillie was cooking the breakfast, and
Tillie was continually talking about my first wife, and
telling me that she would make me go back to my old
bitch, and that was continually preying on my mind,
647 fearing she would tell me to go. This has been going
on all winter about my old bitch, and every day that
I came here she would say sell out, sell all you got
and I was afraid she was going to make me go back
to this woman, and I know that I would not live hap-
py with this woman after going away from her, and it
made me feel very bad. She used to always get at me
about this woman, and I told her to quit that, and I
told Tillie to go back again; I will fix you up your same

little home you had before you made me take you 648
with me. She would not do that, and Tillie said if I
go back, you go back, and sell what you got. I sometimes came home a little full, then she would say to
me, I am going home. Then it got so in my mind
that I would not care to get her off of my mind of
throwing up the woman to me. Then I kept coaxing
her to go and try and settle the case for me, and try
and find out for me if my first wife was married or
not, because my wife told me that she had been married to a man named Scofield. 649

I make the above statement of my own free will.

WILLIAM K. × KEMMLER.
My ✓ marks.

Witness:
HENRY J. MCKEOUGH,
DANIEL E. BARRY,
DANIEL DUGAN.

Mr. Quinby: That is our case. 650

Adjourned until May 8, 1889, 9.30 A. M.

Proceedings, May 8, 1889, 9.30 A. M.

Mr. Hatch opens the defense to the jury.

651

CHARLES H. SPANG, sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. Where do you live, Mr. Spang?
A. 140 Erie street.
Q. How long have you resided in the city of Buffalo?

652 A. About eight months.

Q. Do you know the defendant, Kemmler?

A. Yes, sir; I was in his employ.

Q. How long were you in the employ of Mr. Kemmler?

A. Well, I have been with him twice. The last time about five weeks.

Q. And before that how long?

A. About two or three months.

Q. How long have you known him?

653 A. Oh, I guess I have known him ever since last peach season.

Q. Ever since what?

A. Last peach time; August.

Q. Ever since you came to Buffalo?

A. Very near; yes, sir.

Q. How intimately did you know him? How often did you see him?

A Well, I seen him all the time because I was working with him.

654 Q. How often would you see him; before you commenced working with him how often did you see him?

A. Oh, I seen him around the market there every morning most, buying stuff.

Q. See him about every day?

A. Yes, sir.

Q. How long after you came to Buffalo before you entered the employment of the defendant?

A. I should judge about three months.

655 Q. And then you continued in his employment two or three months?

A. I did, sir.

Q. Mr. Kemmler's business was what?

A. We peddled fruit and vegetables.

Q. Around the city?

A. Around the city; yes, sir.

Q. Were you in his employment on the 29th of March last?

A. I was, sir; I run a wagon for him. 656

Q. What is your employment now?

A. I am in the same business.

Q. Was Kemmler a drinking man?

A. Yes, sir; a very hard one at that.

Q. You may state what you know about his drinking?

A. When I first went to work for him, I had left my former employer and got a job with Billy at the market; one morning told me to come along and we would work on shares together. From the first day 657 I went with him until the time I quit him it was one continual drunk all the time; I never had a cent when night came nor he didn't; we would blow everything in; my folks found fault and his wife objected.

Mr. Quinby: Wait a moment—I object to that.

The Court: Yes, that will not do.

Q. And at the expiration of that time you quit? 658

A. I quit through my folks. They didn't want to have me work no more.

Q. Where would you drink?

A. As soon as we got our load every morning, our load of vegetables, produce, we were going to sell, we would always stop, and at a man by the name of Abe's; Abe Saperstone, on Michigan street; would always stop there and get the first drink.

Q. How long would you usually remain there? 659

By Mr. Quinby:

Q. Saperstone?

A. Yes, sir; on Michigan street.

Q. Whereabouts on Michigan?

A. Well, it is between Swan, I believe, and that other street the other side.

660 By Mr. Sickmon (resuming):

Q. Below Swan or above?

A. It is on the left hand side going down towards the market.

Q. Is it below Swan street?

A. No, it is this side of Swan.

Q. Then where did you two go?

A. Our route was in various parts of the city, we would generally go out to Dutchtown, generally, out 661 that way, and generally every saloon we come to, we would have a drink in.

Q. What would be the condition of the defendant at night?

A. Well, along before night, the two of us would be pretty well filled up.

Q. Would be intoxicated?

A. Yes, sir.

A. About how much money would you spend for drinks during the day?

662 A. Well, I could not tell you exactly how much, but it was in the neighborhood of four to five dollars, that is certain.

Q. And that you and this man took out in drinks?

A. Yes, sir.

Q. Bought very little for anybody else?

A. Well, we had one boy with us; he was working for us as clerk, you know.

Q. Then after you quit upon that occasion how 663 long was it before you entered his employment again?

A. I guess it was—let's see; it might have been two or three months probably; something like that; I cannot exactly remember.

Q. About how long?

A. It might have been two or three months or so and might have been a little longer; I cannot say exactly.

Q. You may tell what took place after you went into his employment the second time, as to his drinking? 664

A. Well, he bought a horse and wagon for me and met me at the market and told me if I wanted to go to work I could take that wagon out and work on shares with him, so I says, "All right, I will come up in the morning and go to work for you," and so I started in to work, and said he was not drinking much at that time, but in two or three days he started the same old story again.

Q. You ran—during the first time you were in his employment, you ran a wagon together? 665

A. Yes, sir; we was working together the same as Yellow and him was.

Q. So that during this first time you were with him all the time?

A. I was with him all the time; yes, sir.

Q. And the next time you ran a wagon of your own?

A. Yes, sir. 666

Q Now, just go on and tell what he did in relation to drinking during this last time that you were in his employment?

A Well, the last time I walked along by myself, I generally got home three or four o'clock, you know; I would get home ahead of him and Yellow every day, and I would turn the money in to his wife; I would sit in there and have a pint of beer; send out and get a pint, sometimes two pints, and my boy that worked for me, this Dennis McMahon, he would go 667 and get it, sit down and drink, and I would turn in the money and go home; went along until one day the night before this murder I met him near here on the Terrace and I left my wagon with my two boys I had in my employ, and went with him and Yellow; well, we got pretty well filled up, the three of us; we was playing checkers.

Q. This Yellow, as you call him, was the witness De Bella?

668 A. Yes, sir; John De Bella, I always known him by the name of Yellow.

Q. That was a nickname?

A. That was a nickname, everyone called him that; yes, sir.

Q. Where did you go on this 28th?

A. The place the man has moved since; it is over here on the Terrace by Seventh street.

669 By Mr. Quinby: Let us get that; whereabouts on Seventh?

A. It is a place right on the corner there.

By Mr. Sickmon (resuming):

Q. Corner of Court?

A. Where Sixth and Seventh commences, you know; it is actually on Seventh street. The first saloon you come to on the left hand side, but it is moved away now.

670

By Mr. Quinby:

Q. Seventh street on the Terrace?

A. Yes, sir; you know—right across.

By Mr. Sickmon (resuming):

Q. What time did you get there?

A. Well, I should judge it was in the afternoon

671 about two o'clock or so, I can't exactly remember.

Q. State what you did that afternoon.

A. I had sold about two dollars worth of my goods; of course they belonged to Billy, as I always called him. I had a few drinks in there and we got to drinking together, and I says, "Well, I will let the boys go sell the load and I will stay with you." So we got to drinking whiskey and beer and cider and one thing and another and playing checkers, and the first thing I know we were pretty well off; we staid there, I guess, three or four hours; stayed there until close onto five or six o'clock. 672

Q. Who were together there?

A. Me and Billy and Yellow.

Q. You and the defendant and De Bella.

A. Yes, sir.

Q. Did you see the defendant drinking?

A. Drank whiskey, beer, cider and everything; commenced on cider first and went up to whiskey.

Q. That is the place—did you hear De Bella's testimony? 673

A. I heard it; yes, sir; part of it, yes, sir.

Q. That is the place—the place to which you referred, was the one that DeBella spoke of, on the witness stand?

A. Yes, sir; that is the place.

Q. Is that the place where you got the bird?

A. No, sir; the bird was got from my house.

Q. That was the same day was it?

A The same evening after we got through work; after we left there we started in to sell a few eggs, we were all too drunk to sell any eggs, so I says, "Come down and I will give you that bird I promised you, to take home to your wife." 674

Q. Did you go to the defendant's with them when they went that night?

A. Up home; no, sir; I did not; Yellow staid in the wagon down stairs and Billy came up in my house, and I gave him a bird there to take home. 675

Q. Could he walk straight?

A. Couldn't walk nor talk straight, neither one.

Q. Staggered when he came up after the bird?

A. Yes, sir.

Q. And walked back?

A. Just about walked and talked straight enough to just get along.

Q. Do you recollect what time you got home that night?

676 A. I should judge it was about between seven and eight, the nearest I can recollect; it was pretty late, I know.

Q. Were you usually there in the morning when Kemmler started out; did you start out together?

A. I generally was there; sometimes I would get up ahead of them, knock at their door to have them get up out of bed; other mornings I would be a little late.

Q. What would be his condition in the morning

677 after drinking the day before?

A. Be shaking, want a drink; me and him would always go over and have a drink together.

Q. Hand tremble?

Mr. Quinby: I object to the counsel leading the witness.

The Court: I would not lead him.

678 By Mr. Sickmon, (resuming):

Q. What do you mean by shaking?

A. Same as a man will be: be nervous and tremble all over; I am the same way myself after drinking.

Q Would he be kind of irritable?

A. Yes, sir.

Mr. Quinby: I object to the counsel leading.

679 The Court: That will not do, Mr. Sickmon.

Q Did you see him upon the morning of the 29th?

A I did after the deed was committed; yes, sir.

Q Not until then?

A. No, sir; I was on my way up.

Q Where did you see him this next morning?

A. I met him in Tom Martin's saloon after the deed was committed.

Q Tell how he appeared then? 680

A. He appeared—

Q. Just state to the jury.

A. He appeared as pale as a ghost, and trembling like; I was in there; Tom Martin called me, he says "Where are you going Charlie?"

Mr. Quinby: Wait a minute, to that I object—what Tom Martin told you.

The Court: Strike it out. 681

Mr. Sickmon:

Q. When you speak of Tom Martin's, that is the saloon on the corner of Jefferson and South Division?

A. Yes, sir.

Q About what time in the morning was this?

A I should judge it was about eight o'clock, or so; I remember I was a little late that morning.

Q. You say that he was pale and trembling; did you look in his face; look at his eyes? 682

A I talked to him.

Q What was the expression of his eyes?

A Oh, same as it had been for a couple of weeks before that.

Q How is that?

A. Why, he was a man that two weeks before he done this deed he acted awful strange and—

Mr. Quinby: Wait a minute, to that I object. 683

The Court: That will not do; why do you not answer the questions Mr. Sickmon asks you?

Q. Go ahead and state what was the condition of his eyes; describe them to the jury?

A. Well, his eyes—the way they looked to me, looked—pretty wild expression in them.

684 Q. And his eye had looked in that condition for how long prior to that time, did you say?

A. Couple of weeks; ten days probably; I didn't like his appearance.

Mr. Quinby: To that I object.

The Court: That will not do.

Mr. Quinby: I ask to have it stricken out.

685 The Court: Yes.

Mr. Sickmon: I except.

The Court: Now, witness, you want to pay attention to the question and answer him; and when you have answered the question stop.

Mr. Sickmon: What is it that is stricken out.

686 The Court:—"He did not like his appearance."

Mr. Sickmon: That is all right.

The Court: It was no ,part of the answer to your question.

Q. During this two weeks prior to the commission of the crime—of this offense—had he been drinking?

A. Yes, sir; he had been drinking pretty hard.

687 Q. And you had seen him every morning during those two weeks?

A. Yes, sir.

Q. During those two weeks prior to this, how had he acted when you had seen him?

A. Well; when I would go up there mornings he acted very quiet; I would say "Good morning, Billy!" he would scarcely answer me, he seemed melancholy—whatever was the matter.

Q. Have you noticed him when you had been in his company; have you noticed him sitting down? 688

A. Yes, sir.

Q. Any length of time?

A. He would sit down sometimes at market for an hour at a time, wouldn't speak a word to nobody.

Q. Just tell the jury how he would sit.

A. Sit down on a chair and he would keep his thumbs going like this, (witness indicating) with his head down; I would say "Billy, give me some money, I have bought a load;" probably I would speak to 689 him three or four times before he would answer me.

Q. How was his memory; remembering or forgetting about things?

A. Well, his memory was so poor, sometimes we would trust money out and he couldn't get at it, and he would forget about it, and I would have to recall his attention to it.

Q. When he had anything to communicate, anything to tell you, would he repeat it over and over again? 690

Mr. Quinby: To that I object.

The Court: That will not do, Mr. Sickmon; you must refrain—

Mr. Quinby: I desire to enter an objection here to the counsel's examination.

The Court: It is entirely improper, and you seem 691 to pursue this course of examination after your attention has been called to it repeatedly; it is not the right thing to do.

By Mr. Sickmon (resuming):

Q. What do you say as to his conversation; was there anything peculiar about that—his talk?

692 A. Well, he didn't have nothing to say in fact, at all—the last couple of weeks.

Q. Did not talk at all?

A. Couldn't get a word out of him hardly.

Q. How often during those two weeks did you see him sitting at the market as you have stated?

A. Oh, I have seen him home in his house sitting the same way; and I have seen him at market repeatedly.

693 Mr. Quinby: No, to that I object; it is not responsive.

Mr. Sickmon:

Q. How many times at the market?

The Court: Witness, if you persist in volunteering here, and not answering questions, the Court will have to deal with you, sir; you will pay attention to the question and answer it.

694

Mr. Sickmon:

Q. How many times, Mr. Spang, have you seen him sit as you have described, at the market?

A. I have seen him several times sit on barrels outside of the commission men there.

Q. As near as you can, give us the number of times?

695 A. Well, probably two or three times.

Q. How long have you seen him sit at a time?

A. Sometimes twenty minutes, sometimes half an hour.

Q. You spoke something about seeing him in other places; where else have you seen him sitting in that way?

A. At his own house.

Q. At 526 South Division?

A. Yes, sir; I guess that is the number. 696

Q. How long have you seen him sit there?

A. Well, I have seen him sit there about the same amount.

Q. In what room would he sit?

A. He would sit in the kitchen.

Q. Where the stove was?

A. Yes, sir.

Q. During the two weeks before the homicide, how many times did you see him intoxicated?

A. The last week before the homicide I seen him 697 intoxicated frequently; but the week before that, before the last week, I didn't see him intoxicated hardly any.

Q. Did you see much of him the other mornings; during the first week—second week before?

A. Not a great deal; no, sir; I did not.

Q. You had given—told his wife that you would give her a bird?

A. Yes, sir. 698

Q. And on the 28th, in the evening, he came to the house and got this bird?

A. Yes, sir.

Q. Was it in a cage?

A. Yes, sir.

Q. What did he do with it when you gave him the bird?

A. Why, the lady that I am boarding with, she put it in a cage, you know, and put a paper around it so that the bird wouldn't catch cold; it was pretty 699 cold that evening.

Q. Did the defendant take it then?

A. He took it down in the wagon—that was waiting down stairs.

Q. And drove away, towards home, with it?

A. Yes, sir.

Q. From what you saw of the defendant during the last two weeks before the 29th of March, how did

700 his conduct impress you: as being rational or irrational?

A. It impressed me as though he was in a very melancholy condition; whatever—

Q. I say rational or irrational; do you understand the meaning of the terms rational and irrational?

A. No, sir.

Q. Did his conduct impress you as being reasonable or unreasonable?

701 A. I thought it was a little out of the way.

Q. Little unreasonable?

A. Yes, sir.

Q. Irrational?

Mr. Quinby: Now, is that his answer or the counsel's?

The Court: No.

Mr. Sickmon: He does not understand the meaning of the term. 702

The Court: You may explain it to him.

Q. The meaning of the term rational and irrational, is reasonable; rational means reasonable and irrational means unreasonable.

A. I thought it was a little unreasonable; kind o a funny way.

Cross-examination by Mr. Quinby:

703

Q. Where do you say you live now?

A. 140 Erie street.

Q. What are you doing?

A. I am in the same business still; peddling.

Q. You are a huckster?

A. That is what they call us.

Q. When did you come to Buffalo?

A. Come the 11th of last June.

Q. Where from? 704

A. N. Y. City.

Q. How long had you been in New York City?

A. Oh, I had been there quite——

Q. Look at me, don't look at your finger nails, they will take care of themselves.

A. I have been there quite a number of years.

Q. What did you do in New York City?

A. Huckstering, the same business.

Q. How many years were you huckstering in New York City? 705

A. I have been huckstering in New York City off and on for the last thirteen or fourteen years.

Q. What do you mean by off and on?

A. Sometimes I would be in New Haven, Connecticut, huckstering; then I would go down to New York and huckster down there.

Q. Whom did you work for in New York?

A. Worked for a man by the name of Jimmie Gibson; he is dead at present; he died last summer. 706

Q. Where did you live in New York?

A. 106 East—337 East 106th street; between Second and First Avenue.

Q. How long have you been a drinking man?

A. I have been a drinking man for the past twenty years, I guess.

Q. Hard drinker?

A. Well, lately I have been a pretty hard drinker.

Q. What do you call lately?

A. Since I have been in Buffalo. 707

Q. Since last June you have been steaming it right along?

A. Pretty nearly all the time; yes, sir.

Q. Have you had any sober intervals?

A. Oh, yes; yes, sir; I have had some.

Q. About how many sober intervals have you had since last June or July?

A. About every morning I would wake up gener-

708 ally sober, but I would go to drinking again when I would go to work.

Q. In the morning you would find yourself sober, and that would be the only time during the day, would it?

A. No, sir; I would be sober until along towards ten o'clock or so, then I would commence drinking pretty heavy.

Q. Do you mean to say that you would stay sober until ten o'clock in the morning?

709 A. Well, I wouldn't be what you might call drunk, I knew my business, you know.

Q. But after ten o'clock then you were pretty drunk the rest of the time?

A. Well, not so that I couldn't tend to business.

Q. Well, what do you call—you were intoxicated, were you not, after ten o'clock?

A. Not always.

Q. Well, most always?

710 A. All except lately; yes, sir.

Q. Most always intoxicated?

A. Except lately.

Q. Do you mean since you got ready to be a witness here?

A. No, sir; I have drunk just as heavy since I have got to be a witness here as before; at times.

Q. Have you been drinking this morning?

A. Yes, sir; I have had three or four drinks this morning.

711 Q. I thought so; what have you been drinking this morning?

A. Drinking whiskey, had to drink it; I am troubled with heart disease and it is the only thing that keeps me quiet.

Q. For the last twenty years you have had a very severe attack of heart disease?

A. No, sir; I haven't for the last twenty years.

Q. About when did this heart disease commence;

we will follow that up a little; what did you drink for before you had heart disease? 712

A. I have always had the heart disease.

Q. Oh?

A. I have always had that.

Q. From a boy up?

A. From a boy up; yes, sir.

Q. And what is your age?

A. My age is thirty-four.

Q. Twenty years; then you commenced when you were fourteen years old? 713

A. I commenced to work sir, when I was——

Q. You commenced drinking when you were fourteen years old?

A. Yes, sir; I commenced when I was fourteen years old.

Q. And been a hard drinker ever since?

A. Sometimes I have, and then again I haven't.

Q. What have you been drinking this morning?

A. Drank two or three drinks of whiskey before coming up in the court room. 714

Q. You said three or four?

A. Well, three or four.

Q. Not more?

A. No, sir.

Q. How long was it since you had your last drink?

A. Just before I was called up here.

Q. Where did you get it?

A. Across the street.

Q. Kind of prepare yourself. 715

A. No, sir; I didn't prepare myself.

Q. Was it for your heart disease this morning?

A. Because my heart troubles me all the time.

Q. Was it for your heart disease that you took that drink this morning?

A. Took it because I needed it.

Q. Felt the need of it; what time was it that you say you first went to work for Kemmler?

716 A. It was last August in peach time.

Q. What time in August?

A. I could not tell you exactly.

Q. Oh, tell us about what time in August?

A. Well, I remember it was in peach time, latter part of the peach season.

Q. One question before I go into that; you say that you were intoxicated generally after ten o'clock, but you could go on and transact your business?

A. I say in such a way that I was—

717 Q. You said you were intoxicated, did you not, a minute ago, after ten o'clock?

A. I did.

Q. Did or did you not?

A. I did, sir; but not so that I couldn't tend to my business.

Q. You said you were intoxicated; now wait a minute; but you could, when you were intoxicated, as you term it, peddle out your load; how, and make your change, could you? 718

A. I could.

Q. Answer up, answer up?

A. Yes, sir.

Q. And when your day's work was through you would bring the money home and give it to this woman that is now dead; how?

A. Yes, sir.

Q. Put up your horse?

A. Put up my horse; unhitch him; pay her up and go home about my business. 719

Q. You say it was in peach time, in August, that you went to work for him?

A. I believe, sir, it was the latter part of peach season.

Q. Where was Kemmler living at the time?

A He was living where he is now, I believe—no, he was not there, he was in another place.

Q If you are sober enough, tell me?

Mr. Sickmon: I object to that. 720

The Court: That is not proper, Mr. Quinby.

A. I am as sobor as any man in the court room.

Q. Now, I ask you, was he living where he does?

A. I do not know where he was living.

Q. You do not know where he was living?

A. No, sir, I do not.

Q. Where did you go to find the wagon when you went to work—at home?

A. Used to meet him at the market every morning. 721

Q. Do you know where he kept his horse and wagon?

Q. How long did you work for him at that time?

A. I worked for him about two months, I should say.

Q. And during those two months you did not know where he lived or where he kept his wagon?

A. Yes, sir; I did.

Q. Tell me where it was? 722

A. He had moved to 526 South Division street.

Q. When?

A. A long time after I went to work for him?

Q. While you were working for him?

A. Yes, sir.

Q. Did he go to 526 South Division?

A. When I first went to work he didn't live there.

Q. Now, if you will keep this in mind, I will talk about when you first went to work for him in August. Now we were not talking about the second time at all. 723 Where was Kemmler living, if you know, when you went to work for him, or while you were working for him in August?

A. Well, sir, when I first went to work for him, the first two weeks or so, I didn't know where he was living, as I used to meet him at market; after that I found that he had moved to 526 South Division and I used to go down there after him.

724 Q. When did you find that he was moved to 526 South Division street?

A. Short time after I worked for him.

Q. About how long had you worked for him when you discovered this?

A. Well, he told me himself a couple of weeks afterwards, or so.

Q. Then it was in September?

A. I couldn't remember when, whether it was August, or September; it was the latter part of the fall,
725 somewheres around there.

Q. You are sure that he was not living at 526, in August, when you first went to work for him?

A. No, because he told me he had moved.

Q. How long did you work for him, at this time?

A. I should judge about two months, or so.

Q. Do you know how long it was?

A. I could not say positively. I should judge about two months, to the best of my recollection.

Q. In the beginning of the work you met him at
726 what market?

A. Met him down there; used to work for him in Gail's commission house.

Q. Gail's commission house?

A. Yes, sir.

Q. On what market?

A. On the Elk street market.

Q. Had he more than one horse and wagon at that time, in the business?

727 A. No, sir; he had just the one.

Q. Who did the buying there?

A. Sometimes he would do it, sometimes I would do it; his money, of course, paid for it.

Q. He bought the goods to sell, did he not?

A. Yes, sir.

Q. Whom did you buy of at this time?

A. We was buying of Mr. Gale altogether, right along.

Q. Nobody else in August, last year. 728

A. I cannot say whether it was August or September, but it was somewhere that time.

Q. During that time that you worked for him about two months, did he buy of any other person than Gale's?

A. We were loading onions off from Mr. Gale.

Q. Did he pay anybody else except Gale; other stuff?

A. I do not remember now, we used to buy anything we could get cheap. 729

Q. Who else did you patronize, that you now recollect?

A Let me see. We patronized Ike Williams, Williams & Vishion, Rea & Powell.

Q. This time it was Williams & Fisher——

A. No, Vishion and Williams; from the whole of them; we patronized anybody that would sell us anything cheap, so that we could make a dollar.

Q. I thought you said a minute ago you bought of 730 no one except Gail?

A. At the present time we was buying onions all the time from nobody else but Gale; and apples, and we were loading from nobody but from him for a long time afterward.

Q. Do you know William Reilly on the market?

A. Yes, sir.

Q. Did you buy of him this first time that you were working for him?

A. I could not say, sir, whether we did or not.

Q. What time would he come with the wagon to 731 the market?

A. Eight or nine o'clock; sometimes he would be a little later, sometimes a little earlier.

Q. How long would it take you to fix up your load?

A. About an hour or so; sometimes a little longer.

Q. When you bought how did he pay; did you give him the bill?

732 A. He had a bag of money in his pocket and when he——

Q. Did you give him the bills for the goods that you bought; how would he know how much to pay?

A. He never took any bills.

Q. How did he know how much to pay?

A. I would call him up and let him do the paying; I would skirmish around the market——

Q. Did you pay cash for all you got?

733 A. Yes, sir; generally.

Q. Then you would start out after completing your load, and you and he would drive together?

A. Yes, sir.

Q. What portion of the business did you do?

A. I was the same as—working on shares; getting half of the profits.

Q. I ask you what you did—sell?

A. I sold goods; I was the salesman with them.

Q. What did he do?

A. He did the same thing; he sold too.

734 Q. Then you and he both sold?

A. Yes, sir.

Q. Both made change?

A. Yes, sir.

Q. And what money you got that you didn't spend for liquor, you would turn in to him?

A. No, sir.

Q. What was it?

A. I gave every cent, as fast as I would take it in, 735 into his own hands; he carried the money.

Q. What were your profits?

A. My profits was—

Q. Wait a minute; don't be in a hurry, my friend; complete my question, if you will; what were your profits weekly, during the first two months that you worked for him?

A. I worked every day; got paid every night.

Q. What were your profits between you; you say you divided the profits—what were the gross profits? 736

A. Some days we would make ten or twelve dollars between us, other days fifteen, some days five; some days we wouldn't whack up nothing.

Q. What would be the average of the week?

A. If I wanted to average down to the week I used to make thirty or forty dollars a week apiece; that is provided we wouldn't spend it foolishly.

Q. Would you generally peddle out your load?

A. Sometimes we would be until ten or eleven.

Q. Would you generally peddle out your loads 737 that you bought in the morning?

Q. Would we sell it out, do you mean?

Q. Yes?

A. We would generally sell it out.

Q. Then when you get through with your day's work, where did you go?

A. I would generally go home.

Q. Where were you living at that time?

A. I was living in the Hagar Block.

Q. Where was that? 738

A. I do not know where it is; I don't know where it is exactly, the names of the streets; it is somewheres around the canal down there; called it the Hagar Block.

Q. Where is it?

A. Right off over this way, by Lloyd street somewheres.

Q. Down in the eighth ward?

A. I guess so. 739

Q. Near Canal street?

A. Little ways from there.

Q. Are you a married man?

A. No, sir; I am not a married man.

Q. Whom did you board with?

A. I board with Mrs. Burns, 140 Erie street.

Q. Whom did you board with?

A. Mrs. Burns, 140.

740 Q. Mrs. Burns?

A. Same woman; I boarded with her ever since I have been in Buffalo, most.

Q. Have a room there?

A. Yes, sir.

Q. He would then, after you left him, he would go home would he; take his wagon home?

A. Generally would, him and the boy; we had a boy hired to work for us.

Q. What was the boy's name?

741 A. Mike McLaughlin.

Q. Where is he?

A. He was in the court room yesterday; I do not know where he is now.

Q. Where does he live?

A. I could not tell, sir.

Q. How old a boy?

A. I guess he was a boy about fifteen or sixteen years of age.

742 Q. Did he always go with you?

A. Generally.

Q. During these two months were you intoxicated all the time, every day?

A. Every—most every day; yes, sir.

Q. You were drunk?

A. Yes, sir.

Q. You spent all your money for liquor, except the little that you paid for board?

A. I did, sir.

743 Q. What is your regular stable drink?

A. I drink anything and everything.

Q. Tell us, name over some of the drinks that you drink?

A. Same as anybody else would drink.

Q. No, tell me?

A. I drink whiskey and beer.

Q. What else?

A. Cider.

Q. What else? 744

A. Well; that is the general drink I drink.

Q. Beer, whiskey and cider. You have no one drink that you prefer to another, then?

A. No.

Q. Anything to get drunk on, is that it?

A. Used to be so.

Q. Anything to get drunk on, is that the idea?

A It used to be so.

Q. Did the doctor prescribe these three different kinds of drink for your heart disease? 745

A. No, I didn't have no doctor prescribe nothing for me.

Q. When did you go to work for him the second time?

A. About three or four weeks, five weeks, I guess, previous to the——

Q. What month did you go to work for him in?

A. Can not tell the month.

Q. Can you tell us the day of the month?

A. Yes, I can tell exactly, I have got his license he bought for me in my pocket (witness refers to paper), March 11th. There is his license, Your Honor, he bought for me. 746

Q. You went to work for him March 11th?

A. Yes, sir; he bought me a license March 11th, to peddle for him.

Q. This homicide was committed on the 29th of March. What had you been doing in the interval between the time that you left him and came back again? 747

A. Working for the same parties I am employed by now.

Q. Now, this second time that you went to work with him, you had a wagon by yourself?

A. Yes, sir.

Q. And you did not go with Kemmler?

A. No, sir.

748 Q. You would generally get home first, you say?

A. Yes, sir; I would generally get home first.

Q. And go in and hand over the money to Mrs. Kemmler and go about your business?

A. No, I would generally stay there and have a pint of beer before I would go home every night.

Q. You did not get enough during the day, did you?

A. I was not drinking very heavy this last time.

Q. You were not?

749 A. I was not drinking all the time; I knew what I was doing there no matter how drunk I was.

Q. On this 28th of March, you say you entered a saloon on the Terrace; how?

A. You mean; yes, that night before; yes, sir.

Q. And whose was the man's name that kept that place?

A. I do not know, I have been there since to find
out, and it was scratched off the window, and he has
750 moved.

Q. What did you want to know that for?

A. I didn't know but what it might want to make up the testimony.

Q. You were unable to prepare yourself, were you?

A. I never prepared myself for nothing.

Q. Why did you go there so that you could find out?

Mr. Sickmon: I submit he has answered that.

751

Q. Tell me a little further?

A. I have got no further to say on the subject.

Q. When did you go there to look?

A. I would drive past there peddling.

Q. You said you went down there to look.

A. I have often thought, myself; that place I have looked at; that is the place where me and Billy and Yellow was the night before he committed this deed;

and I have often looked at it with sorrow and thought of it. 752

Q. You have said you went down there to look at it?

A. I have been past there.

Q. When was that?

A. I was peddling past there every other day.

Q. What day was it?

A. I do not know; I guess it was a week ago, or so.

Q. Do you know when it was? 753

A. About a week ago.

Q. Had you been subpœnaed at that time?

A. No, sir.

Q. How?

A. I had been subpœnaed on the other trials but not on this?

Q. Had you been subpœnaed at that time?

A. No, I got subpœnaed two days ago, two or three days ago? 754

Q. Did you make any inquiries where this man had gone that kept it?

A. No, sir; I made no inquiries from nobody.

Q. You have answered the question when you said no; what were you doing in this place that afternoon?

A. We was drinking and playing checkers and drinking.

Q. Who was playing checkers?

A. Me and Yellow and Billy would take a game; three of us. 755

Q. Did you play checkers all the afternoon?

A. Played there two or three hours.

Q. Did you play checkers until you stopped to go home?

A. Yes, sir.

Q. Playing for the drinks?

A. Well, once in a while we would—yes, we was playing for the drinks?

756 Q. How many times did you get stuck?

A. I didn't get stuck at all.

Q. What were you drinking that afternoon?

A. Cider, whiskey and beer, a little of everything; mixing it up.

Q. About how many drinks did you take that afternoon?

A. I could not tell you.

Q. Give the jury some idea if you can.

757 A. I took a good many, I spent two dollars and some cents out of my own pocket, besides what they spent amongst the three of us.

Q. You quit sober enough to remember how much you spent?

A. I know what I took in when I went there.

Q. What time did you leave there?

A. I guess we left there towards six; then we started around the corner and commenced peddling eggs.

Q. Who commenced peddling eggs?

758 A. Me and Billy and Yellow.

Q. By the word Billy you mean Kemmler?

A. That is the name I have always known him by; yes, sir.

Q. Did Kemmler peddle eggs, too?

A. Staggered around; tried to; we all in fact tried to; we drank two or three drinks.

Q. All so drunk you couldn't peddle, then?

A. I proposed we go home.

759 Q. Did you stagger around any?

A. I didn't stagger, but still I knowed I was pretty full.

Q. You had promised to give Mrs. Kemmler a bird?

A. Yes, sir.

Q. Where was that bird?

A. It was in my house; my people I board with they breed birds.

Q. Did Kemmler drive around there? 760

A. Yes, sir.

Q. You went up and got the bird and gave it to him?

A. Yes, sir.

Q. And then he drove away; you say the week before the week in which this homicide was committed he was drinking very much?

A. No, I do not think he was.

Q. He had quit?

A. He told me he was drinking nothing but cider, 761 that is the—

Q. Never mind what he told you; he had quit?

A. Because I was not in their company much; I would work my wagon one part of the town, they would work theirs the other.

Q. So that you did not know much about what he was doing during those two weeks?

A. The last week I would know; because I saw him at the market feeling,—well,—as though he wanted 762 to drink in the morning.

Q. You met him at the market and he felt as though he wanted to drink in the morning.

A. I could tell right away he was drinking.

Q. Where did you buy your goods at the market during the last week; of whom?

A. The last place I bought was off from Mr. Carpenter; I bought twenty barrels of apples off from him.

Q. Where did Kemmler do his trading? 763

A. He got his separate—I never see him where he would buy his.

Q. Who paid?

A. He would give me my money and I would pay it myself.

Q. Then you would account to him?

A. I would account to him; yes, sir.

Q. When was it you say he looked pretty wild?

764 A. Few mornings—the last few mornings you know, when I would go up and go to work he acted strange like.

Q. Strange like; how wild would he look?

A. That was the morning of the murder I said he looked wild.

Q. That was the morning of the murder?

A. Said his eyes did not look just right.

Q. What was the matter with his eyes?

A. Well, they looked kind of set in his head;
765 fierce looking, like.

Q. Fierce; is that it?

A. I couldn't say; I couldn't explain it exactly how that was.

Q. You say a man looks wild; we want to find out what you mean by it?

A. Looked bad.

Q. Looked tough, is that what you mean?

A. Well, I couldn't say whether you would call it tough, or how to express it.

766 Q. Looked glassy?

A. No, didn't look glassy; looked strange, looked as though he was—I couldn't explain it.

Q. Strange like?

A. Yes, sir; didn't look natural like he always used to look.

Q. What was the difference between his looks on that morning and what he generally looked?

A. Well, that morning I didn't see as there was
767 much difference, only he always looked pretty bad after drinking.

Q. Eyes looking a little red; is that what you mean?

A. Bad looking in the eyes.

Q. Do you mean his eyes looked red?

A. Vacant stare, kind of a vacant stare in them; that is what I mean.

Q. On this particular morning, a vacant stare; describe to the jury what you mean by a vacant stare? 768

A. Sat and looked at a thing a long time.

Q. Did he sit and look on this morning that he killed his wife?

A. I didn't see him this morning he killed his wife, until after the deed was done.

Q. We were talking about that morning; that is the only morning, you have just stated, as I understand your evidence, that is on the morning of the murder, only morning that he looked wild; am I correct in that; am I correct in the assertion that you have said here upon the witness stand that the only morning you saw him look wild, was on the morning of the killing? 769

A. I guess you are wrong there, sir.

Q. How many mornings did you see him look wild?

A. If you will let me explain it to you.

Q. How many mornings did you see him look wild? 770

A. For quite a while previous to this he acted so strange; is that what you mean?

The Court: Strike out that answer.

Q. Strike out that answer. Pay attention to me if you can. How many mornings did you see him look wild?

A. Oh, he looked bad for a good many times.

Q. How many mornings did you see him look wild? 771

A. Oh; I seen him look wild for a good many times; two or three mornings.

Q. For two or three mornings?

A. About three, I should judge.

Q. About three mornings.

A. I should judge so; I couldn't say for sure, I wouldn't want to swear to it.

772 Q. Give us the best of your judgment?

A. The best I know how; I should suppose about two or three times.

Q. When was the first time you saw him looking wild?

A. Oh, previous to this murder.

Q. How long before the murder?

A. Two or three mornings, a week or so, something like that, I can't say exactly, remember.

Q. Two or three mornings a week or so; that is not 773 very definite.

A. Well, say a week then.

Q. "Say"?

A. The best I can remember, sir.

Q. A week; what day of the week was it that he looked wild?

A. I couldn't tell you that.

Q. Where was he when he looked wild?

A. Why, he would sit in the barn there on a barrel.

774 Q. It was in the barn on this morning.

Mr. Sickmon: On which morning do you refer to?

Mr. Quinby: I am talking now about the first morning that he looked wild.

Q. What time in the morning was it?

A. Half-past seven, seven o'clock.

Q. Now, tell the jury about this first morning that he was sitting on the barrel in the barn; describe 775 what you mean by looking wild?

A. Why, I mean by looking wild is, he would always look so pleasant and bid me good morning when I would come up, and a few days previous to this he—

Q. Describe the wild look?

A. Why, sit there and stare vacant like and keep his fingers going like——

Q. Looking down?

A. No, looking kind of half down and half up; as you may call staring into vacancy. 776

Q. Staring at vacancy?

A. Yes, sir; that is what it is.

Q. Did you ever see anybody staring at vacancy?

A. I don't know; I have heard that expression used.

Q. And you think it would be a good one to use here?

A. No, you told me to tell.

Q. Who asked you to use the expression "staring at vacancy?" 777

A. Tell you the best I could; looked as something —I couldn't tell you—

Q. Looked as if he was thinking?

A. Thinking; yes, that is it.

Re-direct examination by Mr. Sickmon:

Q. In about what direction would he be looking; you say he was looking partially down and partially up? 778

A. Just about like this (witness indicating).

Q. Was there any peculiarity about the looks of his eye at that time?

Mr. Quinby: Have they not been over it?

The Court: Yes, they have been all over it.

779

Mr. Quinby: I object to going over it again.

Mr. Sickmon: I ask the question.

The Court: Well, he may answer this question, but you must be satisfied when you go over your case once.

Mr. Sickmon: I simply desire to ask one question.

780 (Question read by the stenographer.)

Q. This is the first time?

A. Yes; there was a kind of; as though he sat there——

Q. Just about the looks of his eyes is what I ask?

A. Just as though he was thinking like, and sat there——

Q. Was there any peculiarity in the look of his eye; did that look peculiar?

781 A. Why, yes, it didn't look.——

HENRY KEMMLER, sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. Where do you live?

A. 2800 North Sixth street, Philadelphia.

782 Q. You are a brother of the defendant?

A. Yes, sir.

Q. How long have you lived in Philadelphia?

A. Since I have been born.

Q. Born there, were you?

A. Yes, sir.

Q. Did your brother formerly live in Philadelphia?

A. Yes, sir.

Q. How long had he lived there?

A. Born there too, same as myself.

783 Q. How long had he lived there; was he born in Philadelphia?

A. Yes, sir.

Q. What is your age?

A. I am twenty-five.

Q. Is your brother older or younger than you are?

A. Older.

Q. When did the defendant leave Philadelphia?

A. Saturday, the 11th of November, 1887, I think.

Q. Before leaving Philadelphia, he resided in the same house with you? 784

A. Yes, sir; 2807 North Sixth, then we lived.

Q. How often did you see him prior to that time?

A. Sir.

Q. How often did you see him before he left there; we will say for the six months before he left Philadelphia, how often did you see him?

A. Sometimes I wouldn't see him for three or four weeks.

Q. And on other occasions, other times would you see him every day? 785

A. Yes, sir.

Q. Did he drink intoxicating liquors at that time?

A. Yes, sir.

Q. Just tell the jury to what extent; just tell how much he drank?

A. Oh, he drank, as near as I can come, for four weeks—or four months he was drunk every day; and I have seen him with a bottle of whiskey in his inside coat pocket. 786

Q. What did he drink; what drink?

A. Whiskey, beer.

Q. Would you see him when he came home nights?

A. No, sir; I did sometimes.

Q. Upon these occasions when you did see him, what was his condition as to being drunk or sober?

A. He was drunk.

Q. He was what?

A. Drunk.

Q. What business, if any, did he carry on during those four months? 787

A. Very little; didn't do anything at all.

Mr. Quinby: Speak up, so that the jury can hear.

A. Very—didn't do anything at all.

788 Mr. Sickmon:

Q. Where did he get his liquor?

A. Well, I couldn't tell; pretty much all over.

Q. Would he get it at saloons?

A. Saloons; yes, sir.

Q. Where would he stay during the day?

A. I do not know where he would be during the day—be out.

Q. Did you see him at any saloons?

789 A. Yes, sir.

Q. What would be his condition the next morning after being intoxicated?

A. Well, sometimes I wouldn't speak to him at all; I would generally get up early in the morning there and he would be laying in the shed on a bench, and I wouldn't speak to him at all; just go attend to my business.

Q. This shed attached to the house?

A. Yes, sir.

790 Q. When he did work in Philadelphia what was his business?

A. Huckstering.

Q. During this four months before he left Philadelphia did you watch him, did you have a chance to observe him, to see how he acted during any part of the time?

A. Yes, sir.

Q. How did his conduct impress you during that time; as being rational or irrational? 791

Mr. Quinby: Ought not we to have the conduct detailed?

The Court: Yes, he must go on and state the conduct, and his answer must be based upon that which he relates.

By Mr. Sickmon, (resuming):

Q. Just tell how he acted?

A. Why, he acted very queer. I have seen him— 792

The Court: Strike out the answer.

A. Seen him one morning jump into a watering trough.

The Court: Leave that part of the answer standing, what he did.

By Mr. Sickmon, (resuming): 793

Q. One morning you saw him jump into a watering trough?

A. Yes, sir.

Q. What else did you see him do; what else was there in his conduct?

A. I have seen him take his horse and want to hitch up the horse and don't put any quiler stretches on him; quiler stretches, you know, what is on a shaft; I don't know what you may call them here. 794

Q. Have any what?

A. Quiler stretches.

Q. Thill stretches?

A. I don't know what you call them here; it is what is tightened to the breeching, you know, and goes around and stretches: keep the wagon from running on the horse.

Q. Hold-back straps?

A. Yes, sir.

Q. What else was there about his actions; how 795 was his memory?

A. Oh, sometimes he get talking about things.

Q. Talk up loud enough so that the jury can hear.

A. Talking about things and he wouldn't know what he was talking about.

Mr. Quinby: Wait a minute, I ask to have that stricken out.

796 The Court: You do not claim—

Mr. Sickmon: We do not ask to have it stay.

The Court: It may go out. Answer Mr. Sickmon's question.

Q. What do you mean by his not knowing what he was talking about?

A. He would get talking, and he didn't know, or nobody else couldn't make out, what he was talking 797 about.

Q. Would he commence on one subject; talk about one subject?

A. Yes, sir.

Q. Then what happened?

A. We couldn't understand what he was talking about; I do not believe he knew himself.

The Court: Strike out the last part of the answer.

798 Q. Would he shift from one subject to another?

A. That I couldn't say, because I couldn't make out what he was talking about.

Q. He would talk in such a manner that you couldn't understand.

A. Couldn't understand.

Q. What he was talking about?

A. No, sir.

Q. Now, from what you saw of his conduct during 799 that time, did it impress you as being rational or irrational; do you understand the term rational and irrational?

A. No, I do not.

Q. Did it impress you as being unreasonable; that of a reasonable person, or unreasonable?

A. I thought he was unreasonable.

Q. And that his actions were unreasonable?

A. Yes, sir.

Q. Did you see your brother afterwards in Buffalo; after he left Philadelphia, did you see him here in Buffalo? 800

A. Yes, sir.

Q. When was that?

A It was two weeks, I believe, before Christmas.

Q. Last Christmas?

A. Yes, sir.

Q. Where was he living then?

A. 526 South Division.

Q. Same place where this occurred; how long did you remain in Buffalo upon that occasion; how long were you in Buffalo that time? 801

A. About two weeks.

Q. Where did you stay?

A. At his house, 526 South Division.

Q. During that time was he drinking?

A. Yes, he had been drunk the night that we got there.

Q. Just state what he did while you were there, in relation to drinking? 802

A. Oh, he came home drunk that night, the next day he didn't drink anything; that was on Saturday; and on a Sunday he went out and he got a pint of whiskey and he drank that, and I believe the next day he got another one—another pint.

Q. Just tell what amount he drank during all the time that you were there; just take it from that time on?

A. About as near as I——

Q. Talk loud enough so that they all can hear you? 803

A. About a quart.

Q. During the time that you were there; during these two weeks, how many times did you see him intoxicated; I will waive that question for the present. What day did you get here from Philadelphia when you made this visit to your brother?

A. It was on a—indeed I couldn't tell you, either Thursday or Friday.

804 Q. What time in the day did you get here?

A. Got here about eleven o'clock, I believe, we got in the depot.

Q. In the daytime?

A. Yes, sir; in the morning.

Q. Where did you see your brother first?

A. At his house.

Q. What time?

A. I judge something like around nine o'clock at night; he hadn't been home when we got there.

805 Q. You got there about eleven, and he didn't come home until nine in the evening?

A. Yes, sir.

Q. Who came with you from Philadelphia?

A. My wife.

Q. Did your brother come home alone when he came?

A. Yes, sir.

Q. What was his condition when he came home about nine o'clock.

806 A. He was drunk; intoxicated.

Q. How did you know he was drunk?

A. Well, he was staggering around the room.

Q. What else indicated that he was drunk?

A. Sir.

Q. How else; by what other means did you know that he was intoxicated? Besides his staggering what else was there?

A. Why, it seemed that he was drunk; he came in the house; he staggered around; he had a bulldog

807 with him, fetched a bulldog in the room.

Q. Then the second day after that, what did you say he drank?

A. I could not say whether it was the second or day afterwards—the day afterwards, a pint of whiskey.

Q. Did he drink it all; drink it himself?

A. Drank it himself.

Q. When else did you see him drink anything?

A. I believe the day after that he drank another pint. 808

Q. Did he go to the saloons any during the time that you were there?

A. Yes, sir.

Q. Did he drink there?

A. Yes, sir.

Q. What did he drink?

A. There was one time I went with him; it was on a Saturday; went down to Mr. Martin's; we drank a few glasses of beer together. 809

Q. How did he act during that time; during these two weeks that you were here?

A. He acted right enough to me.

Q. What is that?

A. He seemed to act right enough to me, as far as I could see.

Cross-examination by Mr. Quinby:

810

Q. Kemmler came here from Philadelphia, how long ago?

A. He left Philadelphia the 11th of November.

Q. A year ago last November?

A. A year ago last November; yes, sir.

Q. He came here in November of 1887?

A. Yes.

Q. Where was Kemmler living in Philadelphia just prior to his coming to Buffalo?

A. At Sixth street, 2807 North Sixth street. 811

Q. Did you live with him?

A. Yes, sir.

Q. Who comprised your family?

A. We boarded together.

Q. Whom did you board with?

A. Mrs. Dodger.

Q. Did you occupy the same rooms?

A. Yes, sir.

812 Q. How long had you been boarding there?

A. I believe we boarded there together, as near as I can come, for two years and a half.

Q. How long?

A About two years and a half.

Q. Where had he been living prior to that time?

A. Why, we lived right next door.

Q. You say we; who do you mean by we?

A. Me and my brother.

Q. Whom else?

813 A. Myself and him.

Q. Alone?

A. No, sir; we boarded.

Q. With whom?

A. Mrs. Flure.

Q. Mrs. Brewer?

A. Flure.

Q. Was your brother married?

A. Yes, sir.

814 Q. Where did he live when he was married?

A. 2807 North Sixth street.

Q. Is that the Mrs. Brewer you were talking about?

A. No, sir.

Q. What was her name?

A. Mrs. Dodger.

Q. When was he married to her?

A. About ten days before he came to Buffalo.

Q. He was married to her ten days before he came to Buffalo?

815 A. Yes, sir.

Q. Did you know Matilda Ziegler?

A. Very little; only till—

Q. In Philadelphia?

A. Very little; only seen the—

Q. Very little, had you seen her?

A. I have seen her once or twice when she came after him.

Q. In Philadelphia?

A. Yes, sir. 816

Q. Where was Matilda living, if you know, while you were in Philadelphia with your brother?

A. Why, Tenth and Poplar.

Q. What was her husband's name?

A. Ziegler; Fred Ziegler.

Q. What was his business?

A. I heard he was a cabinet maker.

Q. Have you ever been to their house?

A. No, sir; never seen the man.

Q. Are you a married man? 817

A. Yes, sir.

Q. Whom did you marry?

A. Mrs. Ziegler's sister.

Q. What was your wife's maiden name?

A. Bertha—Oh, Tripman.

Q. Bertha Tripman?

A. Yes, sir.

Q. When were you married?

A. 30th of December, 1888. 818

Q. Then you came here on your wedding trip?

A. No, sir.

Q. You came here you say in the holidays?

A. Yes, we came here before the holidays.

Q. How?

A. Came here before the holidays; yes, sir.

Q. You say you were here Christmas time?

A. Yes, sir; we was here Christmas day.

Q. Were you married here?

A. No, sir. 819

Q. Where were you married?

A. In Camden.

Q. New Jersey?

A. Yes, sir.

Q. Did you know Mrs. Matilda Ziegler before you married her sister?

A. Very little; only two weeks that—

Q. How long were you here in Buffalo?

820 A. Two weeks.

Q. Stopping at your brother's house?

A. Yes, sir.

Q. Now, while in Philadelphia, you say your brother conducted the business of huckstering?

A. Yes, sir.

Q. What did you do?

A. I am in the same business.

Q Were you and he together in business?

821 A. No, sir.

Q. He had a horse and wagon there, did he?

A. Yes, sir.

Q. How many?

A. He had two there one time; then towards the last he only had one.

Q. At one period he had two?

A. Yes, sir.

Q. Who drove the other rig for him?

A. I drove one for him.

Q. And he drove the other?

822 A. Yes, sir.

Q. How long did he conduct the business of huckstering in Philadelphia?

A. Just the same; nine or ten years.

Q. When he came to Buffalo did he sell out the stuff?

A. Yes, sir.

Q. Sold all out?

A. Yes, sir.

823 Q. Did he continue in the business of a hucksterer up to the time that he left Philadelphia?

A. He still had his horse and wagon, but he was not working.

Q. How long had he quit work before he came?

A. About four months that he didn't do anything at all.

Q. Did you see him off on the train when he came to Buffalo?

A. I didn't see him get on the train; no, sir. 824

Q. How?

A. No, sir.

Q. Did you go down to the depot?

A. I went to the depot; took a trunk down for him on my wagon.

Q. Whose trunk was it?

A. It was his trunk.

Q. Did you see anybody with him at the depot?

A. No, sir; I didn't go—yes, I did. I did go to the depot with him with a trunk, but I didn't see anybody else. 825

Q. Who came to Buffalo with him, do you know?

A. Mrs. Ziegler.

Q. Mrs. Ziegler?

A. Yes, sir.

Q. And her little girl?

A. Yes, sir.

Q. Where is Mr. Ziegler now?

A. I do not know.

Q. Where is his wife? Where is Herman's wife? 826

A. Kemmler's?

Q. Kemmler's wife.

A. The one in Philadelphia?

Q. Yes.

A. She is living on Somerset street.

Q. She is living in Philadelphia?

A. Yes, sir; Marshall and Somerset.

Q. You brought your wife on here when you came in the holidays, you say? 827

A. Yes, sir.

Q. Had a pleasant visit down there with your brother, did you not?

A. Yes, sir.

Q. Had a good time?

A. Oh; we didn't have such good times, no.

Q. You had a pleasant visit, you say, with him; staid till you had completed your visit, did you not?

828 A. Sir ?

Q. You staid until you had completed your visit?

A. Yes, sir.

Q. Then you went home?

A. Went home.

Re-direct examination by Mr. Sickmon:

Q. You have stated that your brother was married 829 to Mrs. Dodger ?

A. No, sir.

Q. What was there about that ?

A. No, Mrs. Dodger, we were boarding at Mrs. Dodger's.

Q. When was your brother married to this wife that is in Philadelphia ?

A. As near as I can come, nine or ten days before he came to Buffalo; I could not tell the day or date.

Q. What was the name of this woman that he 830 married ?

A. Ida Forter.

Q. Where did she live?

A. She lived on Somerset street.

Q. What was her business, if any?

A. She didn't have any business, only worked around the house, that was all.

831 *Re-cross examination* by Mr. Quinby:

Q. How long before Kemmler came to Buffalo did you hear from him that he intended coming?

A. I didn't hear it at all from him.

Q. Did not know he was coming, at all?

A. No, sir; not till I came home of this here Saturday afternoon.

Thomas M. Carpenter, sworn for the defendant. 832

Direct-examination by Mr. Sickmon:

Q. Where do you live?

A. Martin's Corners.

Q. How long have you resided there?

A. About a year; little less, probably; about a year. Last May, sometime, I think I moved there.

Q. What is your business?

A. Huckster. 833

Q. How long have you followed that?

A. More or less for sixteen or eighteen years.

Q. Here in Buffalo?

A. Well, off and on for about ten years here in Buffalo.

Q. Did you know the defendant, William Kemmler?

A. Yes, sir.

Q. How long have you known him?

A. Since the day after Decoration day, the first time I got acquainted with him; I knew him before by reputation, just knew him by seeing him, that was all; I never had no— 834

Q. Last Decoration day?

A. Last Decoration day; the first day after that, I think.

Q. Where did you meet him?

A. On the market.

Q. Did you know his habits as to drinking?

A. Well, since I have been acquainted with him I can account for him pretty well, more or less. 835

Q. Since Decoration day, 1888, down there to the time of the killing?

A. Well, not up to that time; but within three or four days of that time I can—the last time I saw him was that same week, but not that day.

Q. You may state the jury what you know about his drinking?

836 A. Well, I am not much of a speech maker, I can tell you that; I do not know how I can talk; if you will ask me questions I can tell you.

Q. Did he ever drink any at your place—at your house?

A. At my house?

Q. Yes.

A. He never was there but once, and I guess he drank a little there; got outside of a quart of whiskey as quick as any half-dozen men ought to, or a dozen
837 and a half.

Q. When was that; about when?

A. It was sometime about Christmas time—I couldn't say when it was; it was the time his brother and his wife came from Philadelphia; his wife came down after him and we got away from there before she came.

Q. He drank, you say, upon that occasion, a quart of whiskey?

838 A. A quart of whiskey that I had there, pretty good stuff; better than you can buy over a bar, too; have an effect.

Q. Are you upon the market every day pretty much?

A. Most every day.

Q. How often would you see Mr. Kemmler, the defendant?

A. Sometimes I have saw him every day for a week and other times I would miss a week, wouldn't
839 see him at all, he would probably be there—I would see him and wouldn't stop with him.

Q. Have you seen him drinking a great many times?

A. I never saw him when he wouldn't take a drink or ask me to have one the first thing; "Do come on, let's have a drink somewheres;" first salute I would get, about the first.

Q. Did you ever see him intoxicated?

A. Yes, sir. 840

Q. About how many times have you seen him?

A. I have taken him home two or three different times; I don't remember dates; I don't keep no dates of anything; I didn't think anything of the kind would occur, so I had no occasion to keep a date.

Q. What was his condition on these occasions when you took him home?

A. Well, he was stupid as he could possibly be, know nothing, didn't care about know anything.

Q. Could he walk? 841

A. No, sir.

Q. Where was he living at the time that you took him home?

A. He was living on South Division street somewheres; at the time I took him home was on South Division street.

Q. Where he lived in March?

A. Yes, sir.

Q. How long before the killing did you see him last, before the 29th of March? 842

A. I saw him Tuesday of that same week.

Q. Where did you see him?

A. I can't tell you just exactly where, but it is I think on Fargo Avenue and Massachusetts, a saloon on the corner there.

Q. Who was with him?

A. This Yellow.

Q. The witness De Bella?

A. De Bella; yes, sir; Yellow. 843

Q. What time did you meet him there?

A. It was between twelve and one o'clock when I stopped there.

Q. Was there anybody else with him besides this De Bella?

A. No, sir; him and I was together; we met; I was going one way with my horse and wagon and he was going the other, and I made the stop first, and

844 tried to make a sale and failed, and was coming out and met him and he hauled me back; that is, he asked me to come back, it wouldn't take much hauling because I am so easy induced.

Q. How long did you remain there?

A. All the afternoon; I left there, oh, about half-past five, left them there.

Q. What were you doing while you were at the saloon?

A. Drinking beer.

845 Q. What was Kemmler drinking?

A. Drinking beer; when he first went in there he was not drinking, he called for cider and the house didn't have it; the other fellow he drank beer the same; they both called for cider; they didn't have it; consequently they drank beer; he took shupers and I took small glasses, and I think the other fellow did too.

Q. What was the condition of Kemmler when he left?

846 A. I don't know, when he left there; when I left him there he was drunk; I left him there.

Q. You left about half-past five?

A. About half-past five.

Q. Where else have you seen him drink?

A. Oh, I have seen him different places; I have happened places where they wouldn't give him noththing to drink; him and me went on a drunk a couple of days, we made a bet that he could drink more than I could, and I didn't think he could; I didn't think he had place to hold as much as I had. 847

Q. When was this?

A. Well, you ask me a question; I can tell you facts but dates I didn't keep no track of.

Q. Well, about when?

A. Sometime during the winter.

Q. During last winter?

A. Yes, sir.

Q. During those two days where did you go? 848

A. Well, while we were on a drunk?

Q. Yes, sir.

A. Well, the first day we was all over Buffalo, everywheres that I knew where to go.

Q. Did you have a rig?

A. I have; yes, sir.

Q. Did you on that day?

A. I did; he was with me; he sent his boy home with his horse and wagon.

Q. You took him into your rig? 849

A. Yes, sir.

Q. What time did you get through that day, your drinking?

A. Well, my horse run away from me, from the corner of Exchange and Hamburg, somewheres in the neighborhood of about ten or eleven o'clock at night; when we went into the saloon there was no snow, but we went to go out and missed the horse, there was snow on the ground; we couldn't tell which way the 850 horse went because he went before the snow came; just enough to cover the ground; him and me started off to find the horse and was near my house when we found him: I asked him to go there and stay; he went there and stayed and I pulled the mattress off from our own bed; we only had one at the time: was poor then; pulled a mattress out and I wanted him to sleep with me; he wouldn't do it; he sat behind the stove on a little bit of a baby chair, probably that high (witness indicating). 851

Q. Did he sit in this chair?

A Sit there; about the same position he is in now, back of a red hot stove.

Q. In the morning what did you do; the next morning?

A. Started off.

Q. You went to bed then, did you?

A. I went to bed.

852 Q. When did you next see Kemmler?

A. I seen him all night; I didn't sleep, stranger in a house; I didn't sleep; I have git some pretty vicious dogs and they wouldn't allow anybody to make a mismove in the house, and it was more to guard him I kept awake, more than anything else.

Q. What did he do?

A. Hit the bottle once in a while, whenever he felt like it; had it on a dresser, dressing case there, glass in front of it; we got it for an ornament; right
853 front of the big glass probably two foot and a half or three foot square.

Q. Occasionally during the night you would take a drink from that?

A. I didn't.

Q. Well, he did?

A. He drank the whole business; was a quart bottle full of whiskey.

Q. That was the night that he drank?

A. Yes, sir; the night he was out to our house; it
854 was from twelve o'clock or later until morning; he finished the whole business; there was not enough left for me; I felt like having a drink in the morning, there was not enough.

Q. Then the next day where did you go?

A. Tried to get off of the drunk we was on the next day; got onto it worse.

Q. What kind of success did you have?

A. Same as we had the day before, we both were
855 drunk; I took him home that night, no, yes I took him—well, I took him part of the way home at any rate; I don't remember where I did leave him.

Q. About what time at night?

A. He never would let me take him home only once, one occasion I was there to him; get down as near as his house as I possibly could and then we left there; I left him front of his house; then we went to the corner of Jefferson and South Division and had another drink before we parted.

Q. About what time of night? 856

A. Probably eight or nine o'clock.

Q. During that day what had you been drinking?

A. Drinking beer, whiskey, anything we could get; we changed our drinks considerable; I was trying to win five dollars.

Q. Where did you get breakfast?

A. Didn't have any; we got breakfast at our house the morning of the second day.

Q. Kemmler eat anything?

A. Well, he made an attempt. 857

Q. Did he eat anything?

A. Couldn't eat; that was the remark he made there, couldn't eat; we had ham and eggs for breakfast; I thought anything solid or tasty would effect a man that is drinking; that is my diet generally when I am drinking.

Q. He didn't eat anything?

A. He just merely tasted it, that is all, not enough to amount to anything. 858

Q. Where did you get dinner?

A. Didn't have any.

Q. Where did you get supper?

A. I got it home at nine or ten or eleven o'clock at night.

Q. Did you eat any supper; eat anything while Kemmler was with you after you left your house?

A. No.

Q. During the first that you were together, where did you get your meals?

A. I got mine before I left, my breakfast, and I 859
met him on the market; we started off on what we called a drunk.

Q. Where did you get dinner?

A. Didn't get any.

Q. Supper, the first day?

A. I got my supper at home that night.

Q. Did he eat anything?

860 A. Not a particle.

Q. Upon any other occasion did you and he go upon what you call a drunk?

A. Well, we never went off on a drunk, but we have been together; I have often met him around different parts of the town. I never met him anywheres but what he would turn around and neglect his business to go and take a drink at any time.

Q. How many times have you seen him intoxicated in the time that you have known him? 861

A. I never kept no track of the number of times.

Q. Well, about?

A. Oh, I have been with him several times, a dozen times probably when he was drinking, and drinking pretty hard, drunk: and then again I wouldn't see that he was drunk because it is pretty hard matter for me to say that he was drunk; I knew he was a little off; he was staggering, he was not himself.

Q. Have you noticed his actions for the last—during the month of March last? 862

A. Well, nothing more that I know of than any time. I never thought he was—knowed not too much.

Mr. Quinby: Wait a minute.

Q. During the time that you have known him; during all this time have you noticed his actions and his conduct?

863 A. I have never—I have noticed that.

Q. You need not tell how it impressed you; just tell what he did, and how he acted?

A. Well, ask that question over again.

Q. Have you noticed during the time that you have known him, his actions and conduct?

A. Yes, sir.

Q. Now, just state how he acted, how he appeared?

A. Well, he never acted very bright.

The Court: Strike out the answer. 864

Q. Just tell what he did, what you saw him do, if anything?

A. Well, I never saw him do anything, any more than he is just about now; I never saw him at any time when he didn't have his head down and he was in a dull kind of a way at all times, and it would take more than a word generally for to raise him.

Q. Where have you seen him sit as you say he sits now? 865

A. Most anywheres, even if he was standing leaning against anything that would be his position.

Q. How many times have you seen him?

A. Anywhere, no matter, anywheres when he was not drinking, he would be in the same shape.

Q. What else have you seen about him and about his actions and appearance?

A. I do not know as I could say anything different from that except Tuesday before; I noticed then that he was off his base, and I tried to get him to talk to 866 me privately and I couldn't get him away from De Bella.

Mr. Quinby: I move to strike out that answer to it.

The Court: Strike it out.

Q. This Tuesday before what did you notice about his appearance, if anyting? 867

A. About the same as usual; I do not know as I could say that I ever saw him in any different shape; one time the same as another, as far as appearance goes.

Q. That day he was intoxicated?

A. Well, he was not when I first struck him. At least he was not any more—he was drinking cider, we were in and he couldn't get it where we stopped.

868 Q. Have you seen him mornings after he had been drinking?

A. Well, I never seen him only at market. I never saw him at his house.

Q. I mean at the market?

A. Well, I don't get there until ten or eleven or twelve o'clock, so he would have lots of time to get drunk or be sober; generally about ten or eleven o'clock before I get to the market.

Q. Have you seen him sitting there down at the
869 market?

A. Oh, yes.

Q. How many times have you seen him?

A. I couldn't say about how many times.

Q. Well, about?

A. I have run across him lots of times when he wouldn't see me at all; he would be leaning against a barrel; sitting on a barrel, and if I would speak to him (witness indicating) that would be about the
870 shape he would look up at me.

Q. How long would he sit at a time upon any occasions?

A. Not very long after I got after him; him and me generally used to go away together when he didn't have too much of other company.

Cross-examination by Mr. Quinby:

871 Q. Where do you say you live?

A. What is that, sir?

Q. Where do you say you live?

A. Martin's Corners; Thirteenth ward; the other end of the Thirteenth ward.

Q. How long have you lived out there?

A. Pretty near a year. Sometime last May I moved there.

Q. Where did you live prior to that time?

A. On Alabama street between Elk and Fulton. 872

Q. Are you a man of a family?

A. Yes, sir.

Q. What does your family consist of?

A. The whole family; just my wife and two children, do you mean, I have got a larger family than that, too.

Q. Your wife and two children; how long have you been married?

A. Nine or ten years; nine years probobly. I can't remember. 873

Q. What is your age?

A. About forty.

Q. How long have you been married?

A. About nine years; mignt be a little more, or probably a little less.

Q. You say you have always followed the business of a peddler or huckster?

A. Well, more or less; sometimes I work; I have been working on the docks; I have been driving team for different parties. 874

Q. What did you do when you were on the dock?

A. Used to shove lumber.

Q. How long did you work at that?

A A few years off and on; sometimes in the summer time; and then at the same time I was peddling; days when I wouldn't work and I would tend to the peddling business.

Q. Besides being engaged in the lumber shoving business you have been what else?

A. Peddling, huckstering, as they call it. 875

Q. What else; what other business?

A. I guess nothing else; I used to work when I could work, and when I didn't have work to do I would peddle.

Q. I was just getting at the kind of work besides when you were peddling?

A. Well, I have done considerable driving for different firms here in the town.

876 Q. How long have you been a drinking man, Carpenter?

A. Well, more or less, I guess, as long as I have been able to; I do not drink to excess though, only sometimes I get drunk occasionally, but I do not get off my base, I know what I am doing.

Q. I wanted to see about when; what your age was when you first commenced to drink?

A. I couldn't tell you that.

Q. About how old were you?

877 A. Well, since I have been drinking to any extent is just about the time that I have been peddling here in Buffalo; I have handled a saloon trade.

Q. About nine or ten years?

A. Might say more or less at times, not to drink to excess though; I would just merely take a drink same as probably you would or anybody else, when I feel like it; I didn't get drunk every day for nine or ten years.

878 Q. No, I didn't suppose you did; you couldn't carry on your business?

A. No, I didn't get drunk any time to neglect my business; I tend to that.

Q. About how many times would you say that you have heen drunk?

A. Never kept track of them.

Q. Give the jury a little idea?

A. Couldn't do it; I shouldn't think—there is lots of people in here know me, and I do not think any of them can say they ever saw me drunk, and have 879 known me as long as I have been here.

Q. I am not asking that; I was just trying to compare you and Kemmler?

A. What do you mean—how many times I have been drinking with him?

Q. No, no, about how many times have you been drunk altogether?

A. I couldn't say; I never kept no track of it,

never thought I would have occasion to speak of it 880
at all.

Q. About how many times?

A. I couldn't say; I couldn't think at all.

Q. You can tell us whether it was more than once?

A. Yes, more than once.

Q. A hundred times?

A. Well, no I couldn't say that.

Q. How much under a hundred?

A. I couldn't say anything of the kind; I know I
have been with him two or three different times on a 881
drunk; one time it lasted two or three days.

Q. When was it you made this bet with Kemmler?

A. Well, I told you once I didn't keep no dates.

Q. About what month was it in?

A. I think it was somewheres around Christmas; might be before or after, I couldn't say when.

Q. You fix the time pretty near as the time when his brother—when you learned subsequently that his wife and brother had come here?

882

A. Yes; that was the second day.

Q. Where did you make this bet?

A. Just made a verbal bet right on the market.

Q. Where were you?

A. Right on the market; couldn't say exactly where, we were all over there, down there.

Q. I did not quite understand the nature of the bet that you made with him?

A. Well, I will give it to you straight this time.

Q. What was the bet?

883

A. I asked him what he was going to do: he says nothing; he says to me, "What are you going to do?" says I, "Nothing." "Well," says he, "I have got a few cheese to sell; come with me." We started to drink at that time without a bet being made, and the first thing I seen that he was going a little bit off, says I, "Billy, by gosh, you can't stand much drink." "Well," he says, "I can stand as much as you can."

884 I says, "I will bet you five dollars you can't." Then we were drinking, and every time—we started to drinking—that was a verbal bet, it didn't amount to anything; I wouldn't have taken his five nor he wouldn't have taken mine; just merely a remark was made.

Q. But you had a little pride to show that you could drink more than he did?

A. Well, might be that way, just as you like.

Q. And you laid him out, as the term is sometimes
885 used?

A. Yes, sir; I laid him out two or three times the first day.

Q. You stood up pretty well?

A. Yes, sir.

Q. You are a larger man than he is?

A. Considerable more of me than there is of him.

Q. Did you come home; was your family home?

A. Yes, sir.

Q. You brought him right there to your house?

886 A. Yes, sir.

Q. And your two children there?

A. Yes, sir; I wouldn't say whether I had two then or not; I have got two now.

Q. You had at least one child at the time?

A. I had one; yes, sir.

Q. You were the father of at least one child at that time; you had a quart of whiskey in the house?

A. Yes, sir.

887 Q. Where did you get it?

A. Bought it.

Q. Where?

A. On Elk street; to Welch Brothers, on Elk street.

Q. What was it; just a quart bottle?

A. Just a quart bottle; one of my own bottles.

Q. You hadn't opened it?

A. Well, I had it open a good many times, but this particular—

Q. Well, this particular time it was filled? 888

A. Might be open.

Q. Any drank out of it?

A. There was not much out of it; it was about a quart.

Q. How many drinks had been taken out?

A. I think none; I didn't think there was any taken out at all; none. If there was, there was not more than one.

Q. You didn't sleep any that night?

A. I didn't. 889

Q. What were you afraid of, did you say?

A. I was more afraid of the dogs tackling him than anything else?

Q. What, do you keep dogs?

A. Yes, sir.

Q. Fighting dogs?

A. Well, no.

Q. What kind of dogs?

A. Well, I have got one New Foundland and the 890 other is a conundrum; I can't tell what he is.

Q. So that the next morning you went off; you didn't determine your bet the first day?

A. Didn't think any more about it after it was made.

Q. Did you get intoxicated that day at all?

A. Well, not much.

Q. A little?

A. Well, probably a little, not much.

Q. How about the next day? 891

A. Well, about the same.

Q. You got a little loaded?

A. I tended to what business I got to tend to, and after I got through with my business, if I want to get intoxicated, I do.

Q. You got through with your business, and then you would take up the other line of business; on this night of this second day, you say you took him home?

892 A. I didn't take him home; I took him towards home.

Q. In your wagon?

A. Yes, in my wagon; he was with me all day until after dark.

Q. When you let him out of the wagon you and he both got out, as I understood you?

A. I had to get out to get him out.

Q. You helped him out?

893 A. Yes, sir.

Q. Then you both walked into the saloon?

A. No, sir; he started to go in the house and then we went from there to the saloon; I think we went, I wouldn't say for certain for it, but I think we went up to the corner of Jef——

Q. You walked along up to the corner of the saloon, did you, together?

A. We certainly did.

Q. You walked together to the saloon and got a drink?

894 A. Yes, sir.

Q. You got in your wagon and drove off, and he went home?

A. Left him in the saloon.

Q. You left him there?

A. Yes, sir.

Q. Did you give him a dog, on that occasion?

A. No, sir.

Q. Did you ever give him a dog?

895 A. No, sir; I was with him one time when he had a dog somebody else give him.

Re-direct examination by Mr. Sickmon:

Q. When was that time that he had the dog that somebody gave him?

A. Well, I remember somebody give him a dog, but I do not remember what it was, at all.

Q. You recollect the time? 896

A. No, I do not remember the time; I know he had a brindle bull?

THOMAS MARTIN, sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. Where do you live?

A. Corner of South Division and Jefferson street. 897

Q. What is your business?

A. Saloon business.

Q. Your saloon is located on that corner?

A. Yes, sir.

Q. How long have you kept saloon at that point?

A. Three years the sixteenth of next September.

Q. Do you know the defendant, Kemmler?

A. Yes, sir; I am acquainted with him.

Q. How long have you known him?

A. Well, I should judge in the neighborhood of about seven to nine months; I wouldn't be positive, something like that. 898

Q. His place where he lived was not far from your saloon?

A. Well, just about the center of the block; the block runs about four hundred feet, I should judge.

Q. About two hundred feet from your place?

A. About two hundred feet from my place; yes, sir.

Q. And since he moved there you have known him; or did you know him before he came there? 899

A. No, I never was acquainted with him till he moved up there, that is not to be personally acquainted with him.

Q. Did he occasionally come to your saloon?

A. Well, I judge he might frequent the house about twice a month.

900 Q. During all of this time?

A. During all that time; yes, sir.

Q. When he came to your place how long would he usually stay?

A. Well, there has been times when he would stay maybe for a couple of hours or so, that is of an evening, and might drop in the next morning; that would be about all I would see of him for—might be for a couple of weeks more.

Q. At the times that he was in your saloon did 901 you notice anything peculiar about his conduct?

A. Well, his actions was a little different, just the same as this man said; when he would get——

Q. Just tell the jury how he acted?

A. Well, he would act like that, leaning on his knees, &c., and seemed to be thinking at all times; that is, when he would have any drink in him.

By Mr. Quinby:

902 Q. If he had any drink in him?

A. When I judge he had drink in.

By Mr. Sickmon, (resuming):

Q. How is your saloon, is it one room or more?

A. Well, there is a pool-room, and a room out in the bar; it is partitioned off, just simply a door-way going to the pool-room.

903 Q. Is the bar in the front room?

A. Yes, sir.

A. And the pool-room in the rear?

A. Pool-room in the rear.

Q. When he would sit—where would he sit, in the front room or in the pool-room?

A. In the pool-room, there was times that he sat in the pool-room.

Q. Just tell the jury how he would sit?

904 A. Well, he would sit in just about the same position he is in now; that is all the positions I have ever seen him sit in.

Q. How long would he sit at a time?

A. Well, that I couldn't say exactly.

Q. Give the jury some idea?

A. He would sit there quite a little while sometimes; I should judge three, four, five hours, &c.

Q. Four or five hours?

A. Sometimes when he would be in the pool-room, of course I wouldn't pay any attention to him. 905

Q. You would pass back and forth tending to your business?

A. Yes. Rear entrance of course is going out that way.

Q. Would he say anything to anybody?

A. Never.

Q. Sit there perfectly quiet?

A. Just simply sit that way unless want to speak a question or asked him anything.

906 Q. When he was spoken to would he always answer?

A. Well, he might answer and still not raise his head.

Q. Upon about how many occasions did you see him sitting in that position?

A. Well, I might see him five, six or seven, as near as I could judge; five, six or seven times.

Q. Was there any other peculiarity about his——

A. I never noticed anything different. 907

Q. On this 29th day of March did he come into your place?

A. Came in this morning; yes, sir.

Q. About what time in the morning was it when he came?

A. About quarter after eight.

Q. Was there anybody with him?

A. No, he walked in alone. This gentleman, Mr. King here, came right in after.

908 Q. Came in afterward?

A. Yes, sir.

Q. You had some talk with Mr. King, he spoke to you?

A. I did after he told me——

Q. He said something to you?

A. Yes, sir.

Q. After he had made this statement to you did you observe the defendant; did you look at him then?

A. Why, I looked at him; yes, sir.

909 Q. What did you notice about him then?

A. Why, I honestly thought that he acted a little curious, but I wouldn't—

Mr. Quinby: Well, I ask to have that stricken out.

The Court: Strike it out; he wants you to describe anything you noticed about him; not say it was queer or curious or anything of the kind, but describe it.

910

Mr. Sickmon, (resuming):—

Q. Tell the jury what there was about it?

A. He acted like a man that I thought was not all right.

The Court: Strike it out.

Q. Mr. Quinby: What you thought is not of any importance. 911

The Court: Do you not know what I mean when I say you are to describe what you saw?

A. That is pretty near, as near as I can describe it, Judge.

The Court: That is not a description at all; if you were going to describe Mr. Sickmon you would say he had his hands behind him, looking at you, that is a description. 912

By Mr. Sickmon, (resuming):—

Q. Tell the jury as near as you can how he looked and how he appeared and how he acted?
A. Well, he was in a kind of a wandering sort of a way.

Mr. Quinby: I ask to have that stricken out. 913

The Court: That is no answer at all.

Q. What did he do?
A. Walked in and asked for a glass of beer; I refused him the beer when Mr. King had told me. I walked away from him: I didn't pay any more attention to him.
Q. Did you look at his eyes?
A. I looked at his eyes. 914
Q. How did they look?
A. They looked different from what they had looked before, to me.
Q. In what particular did they look different?
A. Looked wild like.
Q. They looked wild?

Mr. Quinby: "Wild like."

Mr. Sickmon, (resuming): 915

Q. What did he do after you told him that he could not have the drink?
A. I walked away from him and spoke to Mr. King, and he walked out of the side door.
Q. Did you notice him upon any other occasion before that, when he looked as he did then?
A. I did not; no, sir.

916 Q. About what length of time was he in your place on this morning?

A. Well, about two or three minutes.

Q. When was he at your saloon last, before that?

A. From two to three weeks.

Q. During those two or three weeks you hadn't seen him at all?

A. I hadn't seen anything at all of him; no, sir.

Q. Have you ever seen the deceased, the woman that was killed?

917 A. Yes, sir.

Q. How many times have you seen her?

A I believe from eight to ten times.

Q. Where had you seen her?

A. Well, she used to come down to the saloon after a pint of beer or so.

Q. Did she ever come there after him?

A. Yes, sir.

Q. How many times?

A. Well, may be around two or three times.

918 Q. Did they go away together?

A. Well, they sometimes did. There was other evenings that he would sit there and she would—

Q. That he would not go?

A. Yes.

Q. Was he in there occasionally evenings?

A. Oh, no.

Q. How?

A. Very seldom of an evening.

919 Q. When he came there it would mostly be during the day?

A. Well, through the day; yes, sir.

Q. What time in the day was it when he came there and sat in the chair at those times?

A. I believe it was in the morning.

Q. Usually in the morning?

A. Yes, sir.

Q. What time would he get there?

A. Might say, maybe, eight or nine o'clock, eight, half-past eight, something like that. 920

Q. And would sit there as you have described, three, four or five hours?

A. Three, four or five hours; it didn't occur only two or three times that I recollect of.

Cross-examination, by Mr. Quinby.

Q. You say he had not been in your saloon for a long time prior to this? 921

A. Well, in the neighborhood of from two to three weeks.

Q. Do you put that more than twice that he came in and sat down and put his head down?

A. Oh, yes; it might have been more than twice, maybe from three to five times.

Q. Do you know how many times?

A. I don't know exactly.

Q. Where would he sit, in the billiard room? 922

A. Used to go out in the pool-room and sit down in the pool-room.

Q. Where they were playing pool?

A. No, sir; I would generally ask him to sit down there if he felt in anyway in that condition.

Q. At this time that he would sit like that, he had been drinking somewhat, had he not?

A. Yes. sir.

Q. Beer?

A. Beer, and sometimes has taken a little whiskey. 923

Q. You attributed it to his being sleepy, did you not?

A. Yes, sir.

Q. On this morning in question who came in first, Mr. King or Kemmler?

A. Kemmler.

Q. Where were you, behind the bar?

A. I was back of the bar.

924 Q. Waiting on any customers?

A. No, there wasn't anybody in at the time.

Q. What did he say to you?

A. He asked me for a small glass of beer.

Q. Did you start to get it?

A. I made an attempt to get it.

Q. Did you notice anything about him when he asked you for a glass of beer?

A. I didn't at the time; no, sir.

Q. Then King came in?

925 A. Yes, sir.

Q. What did King say to you, in Kemmler's presence?

A. He had cautioned me not to give him any beer.

Q. Use his words?

A. He claimed—he says, "This man has brained his wife," and he cautioned me not to give him any drink.

Q. What did you say to that?

A. Then I refused.

926 Q. What did you say to it?

A. I says, "If that is the case, Billy, you can't have any drink here."

Q. What did he say to that?

A. He didn't answer at all.

Q. Were you sworn once before in this case?

A. Yes, sir.

Q. You say he made no answer at all in the saloon?

A. He made an answer in my saloon, but not at
927 that present time, but a few seconds after that; then he says, "I done it, and I am willing to take the rope for it."

Q. Now, that is the time you say he looked a little wild?

A. I was told what had occurred, and he looked pretty wild to me.

Q. He looked wild?

A. Yes, sir.

Q. Tell the jury what you mean by looking wild? 928

A. Well, he acted different from the way that he ever looked to me before.

Q. You knew then he had just killed his wife, did you not?

A. I did not pay any attention at all until I was told to what he had done.

Q. You did not notice that he looked wild until you were told that this man had brained his wife?

A. That is right.

Q. Then you looked at him? 929

A. Then I paid a little more attention to look at him.

Q. Then you said something to him and he says, "Yes."

A. I didn't speak to him at all.

Q. Did you notice anything about his looking wild until you heard King say "This man has brained his wife"?

A. I didn't; no, sir.

Q. Then after that did you look at him? 930

A. I looked at him then a little more than I did at first.

Q. Then you noticed that he looked wild?

A. Yes, sir.

Q. Now, tell the jury what you mean by looking wild, if you please?

A. That is as near as I can get at it; that he acted and looked more curious than he did at any other time.

Q. Describe what you mean by curious? 931

A. Well, that he—his eyes was wandering, and he looked different from what he had before.

Q. What do you mean by wandering.

A. That is as near as I can tell you.

Q. I want you to tell me, sir, what you mean by wandering?

A. Well, if a man acts as much different from what he had before.

932 Q. We will confine ourselves, if I can get you to, to this man's eyes; he didn't look wild except with his eyes, did he?

A. Yes, simply with his head and his eyes and his actions.

Q. Did he look wild with his head?

A. With his head, eyes and actions.

Q. What did he do with his head to make him look wild?

A. He kind of held it down, &c., and walked by 933 with his hands in his pockets, and kind of a curious sort of an action.

Q. Did you think he looked wild because he had his hands in his pockets?

A. That is as near as I can describe.

Q. Is that one of the things that made you think that he looked wild, because he had his hands in his pockets?

A. No, sir.

934 Q. Because his head was down, when this man said "This man has brained his wife," is that one of the things that he looked wild with?

A. That made me think so.

Q. That made you think he looked wild because his head was down? Now, what peculiar expression was there about the eye?

A. The peculiar expression was that it was different from what I have ever noticed before.

Q. You say he was looking around, how could he look around when his head was down?

935 A. He could be looking around and keep his head down.

Q. Did you see him looking around when his head was down?

A. Yes, sir.

Q. How did he look around; show the jury?

A. He could keep his head down, be looking around, &c.

Q. I did not ask you how you—you understand you are swearing in an important case here, do you not? 936

A. Yes, sir.

Q. Now, stand up and take your hand off there; I want you to stand up a little, if you will. Now, I want you to show to the jury how he looked around wild; then do as you saw him do.

A. Well, the actions——

Q. Just show?

A. The actions that I saw, he had his hands in his pockets and just about turning his head from one side to the other. 937

Q. Show the jury how he turned his head?

A. That is as near as I can show the jury.

Q. Just act it if you can?

A. Walking around like that, and turning his head when he spoke to Mr. King (witness indicating).

Q. That is what you mean by looking wild?

A. That is what I mean.

Q. That is as near as you can get to it? 938

A. That is as near as I can describe it.

Recess until two o'clock.

Afternoon proceedings.

JAMES MARONEY, sworn for the defendant.

Direct examination by Mr. Sickmon: 939

Q. Where do you live?

A. Corner of Heacock and Exchange streets.

Q. How long have you resided there?

A. Pretty near two years.

Q. Do you know the defendant, Mr. Kemmler?

A. Well, I have seen him; I see him down there a few times; lived around there on this corner for a while.

940 Q. He lived within a short distance of where you keep the saloon?

A. Yes, he lived in the next block.

Q. Did you see him occasionally?

A. Oh, I seen him; used to meet him at times, seen him around the streets; come into my place once in a while.

Q. About how long ago did you first meet Mr. Kemmler?

A. That I couldn't really tell.

941 Q. As near as you can recollect?

A. Sometime last summer.

Q. The early part of the summer.

A. Oh, about the middle of the summer; I don't know exactly; it was quite a while down there before I got acquainted with him there, was running down there sometime before I got acquainted with him.

Q. Where did you see him?

A. He came into my place once in a while, in the
942 evening.

Q. Did you see him besides when he came into your place; did you see him at other places?

A. Used to see him on the street; meet him on his wagon.

Q. About how often would he come into your place?

A. Oh, he may be in half a dozen, more or less.

Q. What say?

A. He may be in half a dozen times, I couldn't
943 say—more or less—I couldn't say exactly.

Q. During the time that you were there?

A. Of course, I didn't keep track of how many times he had been in there.

Q. Did he drink at your bar occasionally?

A. Yes, sir; he had a glass of beer or two, once in a while.

Q. Did he ever drink anything beside beer—drink whiskey at any time?

A. I do not know; probably he came in in the 944
morning, he might take a glass of whiskey same as I would myself if I needed it.

Q. Have you seen him intoxicated?

A. Oh, well, he was intoxicated a little, yes; yes, he has been intoxicated, been a little full.

Q. About how many times during the time that he resided near you did you see him intoxicated?

A. Well, that I couldn't say; of course I didn't pay any attention to anybody when they came in, if
they be intoxicated or not; they drop in probably 945
sometimes, take a glass of beer and come out again, sometimes come in again.

Q. About how many times?

A. I couldn't exactly say how many times?

Q. Give the jury some sort of an idea so that they can know?

A. Of course he had all the time; had some more or less, taken for some time in there.

Q. Upon every occasion that you saw him he had 946
been drinking more or less?

A. Yes, sir; every time I saw him in my place.

Q. So that he showed it?

A. Yes; well, he was in one night; he was a little intoxicated, and he went on home, whether he went from my place home, or what he did go, I couldn't say.

Q. Did anybody come after him that night?

A. Oh, yes, his wife came after him; she used to come over there whenever he would come over there,
she would want him to come home; he would say, "Go 947
on home, I will be home after you," and he went home this night; I guess he laid down before he went home; he went home; well, I couldn't say what time it was; I didn't pay much attention to what time of night it was.

Q. When you say his wife, you mean the woman who was killed?

A. Sir?

948 Q. When you say his wife, you mean the woman who was killed?

A. Yes, sir; certainly; I don't know any other woman, I don't know anybody else.

Q. About how many times did she come after him that you remember?

A. She used to come occasionally; once in a while. I couldn't say. Of course she used to come over to the grocery for her groceries; she would ask me if he was 949 in there, I would say, yes, she would call him to come on home, he would say, "Will you go home; go home, I will be home after you."

Q. To your best recollection how many times did his wife, or this woman who is dead, come after him, to your place?

A. That is more than I can say; of course these— the only time that she came over there that she wouldn't say—that she would want to know if she was in and would want him home.

Q. How many times—put it in another form—did 950 she come to your place and enquire for him, when he was there?

A. Oh, probably three or four times, I guess, when she catched him there; she used to enquire for him when he wouldn't be there, he would be somewhere else.

Q. There were three or four occasions she enquired for him when he was there?

A. Yes, sir.

951

Cross-examination by Mr. Quinby:

Q. You keep a grocery?

A. Yes, sir.

Q. And saloon also?

A. Yes, sir.

Q. At this time Mrs. Kemmler traded with you?

A. She used to trade some with me, yes. 952

Q. And when she would come over for the groceries she would ask you if William was there?

A. Yes, sir.

Q. Her husband or the man she was living with. Now, you say you have seen him about how many times when he had been drinking?

A. Oh, he had been in about a half a dozen, maybe more, I couldn't say; of course, I kept no track of him, how many times he had been in there.

Q. When was the last time; how long ago? 953

A. It must be all of five or six months ago since he left down there, I presume it is, I couldn't say.

Q. He could walk all right, couldn't he?

A Well, yes, he used to walk all—when he was around my place, but what he did when he went out I couldn't tell.

Q. I am not asking you what you did not see, but I am asking you what you did see?

A. Oh, yes, when he was inside he could walk— 954
he was always full—of course any man take a few drinks, of course after taking it, in the course of ten or fifteen minutes, it comes more than it would at the taking it.

Q. You talked with him?

A. Yes, but I didn't use to have much time to talk with him, I was busy in other places.

Q Did you talk with him?

A Certainly.

Q. Talk all right? 955

A. He talked whenever he called for anything, sometimes forget it—

Q. I can not hear what you say.

A. Sometimes he would call for a glass of beer, probably forgets whether he paid for it or not.

Q. You would call his attention to that fact?

A. I would have to. If I didn't there would be no use of my keeping a place.

956 Q. What would he do in there besides taking a drink?

A. Well, 1 didn't see him doing anything in my place, because I used not to stop long enough; if they called for anything I would just walk right back in the other place, there would be somebody else waiting for me.

Q. You did not pay much attention to what he was doing?

A. I didn't pay much attention to anybody when

957 they would be in there except late at night when the other store would be closed and I would have more time in there.

DEDE J. JOY, sworn for the defendant.

Direct examination by Mr. Sickmon:

958 Q. Where do you live?

A. 72 North Division street.

Q. What is your business?

A. A huckster, sir.

Q. How long have you followed that business?

A. About going on two years; it will be two years next October.

Q. Where did you usually buy your goods?

A. On the Elk street market.

959 Q. You knew the defendant?

A. Yes, sir.

Q. How long have you known him?

A. Since April, 1888.

Q. And he bought his goods at that same market?

A. Yes, sir; I have seen him there several times.

Q. Have you been intimately acquainted with the defendant?

A. Well, yes; I might say I was.

Q. How often would you see him? 960

A. Well, sometimes I would see him every day in the week, and more times I would only see him two or three times during the week, and sometimes I would not see him for a week at a time.

Q. Do you know anything about his habits as to drinking?

A. Yes, sir.

Q. State to the jury what they were, as to whether he was a drinking man, or not?

A. Well, I always considered him a drunkard, sir. 961

Mr. Quinby: Well, to that I object:

The Court: Strike it out:

Q. Have you seen him drink?

A. Yes, sir.

Q. On frequent occasions?

A. Yes, sir; and drank with him.

Q. Have you seen him intoxicated? 962

A. Yes, sir.

Q. About how many times have you seen him?

A. I could not say, sir; never made no note of it, because I never thought of anything of that kind.

Q. A great many times?

A. Yes, probably.

Mr. Quinby: Now, that is leading his witness.

The Court: That will not do. 963

Mr. Sickmon: I insist on the question; I asked him if he has seen him intoxicated a great many times?

The Court: Let him tell if he can what is the extent of his observation.

Mr. Sickmon: Yes, I know, but I want to get at it in this way.

964 Q. Give us, as near as you can, the number of times that you have seen him intoxicated since you have known him?

A. Well, of course, that would be a hard matter to say as to how many times I have seen him drunk, because I have seen him drunk so often; I could not say, sir.

Q. About how frequently?

A. Well, probably two or three times a week; I wouldn't swear to that, though; as near as I can get
965 at it.

Q. Where would you see him intoxicated?

A. Well, on two or three different occasions I saw him on the market.

Q. Where did you see him on the other occasions?

A. Well, on one occasion I saw him and Tom Carpenter drunk on the corner of Ellicott and North Division street, probably about four months ago, or three months ago; I would not be positive as to the
966 date.

Q. Where did you see him drink intoxicating liquors?

A. Well, I saw him drink intoxicating liquors at Julius Haas', on the market; Elk street.

Q. Where else?

A. Also at Denny O'Brian's, Michigan street, and the Ontario House, corner of North Division and Ellicott street, and several other places.

Q. How did you know he was intoxicated? you say you have seen him intoxicated; what indicated
967 that?

A. Yes, sir; I have seen him several times so that he was not able to walk, what I would call a drunk; stagger from one side of the street to the other; was not capable of doing business.

Q. Did you hear him talk?

A. Well, yes, sir.

Q. How was his talk; how was his conversation?

968 A. Well, when he was drunk he did not talk a great deal; he was a very quiet disposition; I always considered him that way; when he was drunk he always kept pretty quiet.

Q. Have you seen him sitting down at the market?

A. Yes, sir; I have seen him on two or three different occasions, sitting on the market with his head hanging similar to what he is sitting there now.

Q. How long would he sit at a time?

A. Well, probably as long as five or eight minutes, probably ten. 969

Q. Would he be awake?

A. As to that, I could not say; I have noticed him sit that way; I would not be sure about him being awake or asleep.

Q. What else, if anything, Mr. Joy, did you notice about him that was peculiar, in his business transactions, his conduct?

A. Well, I noticed about two or three weeks before the trial he was very distant towards me and several 970 other of the hucksters to what he had been when he would meet me several weeks before the murder; he would hardly speak to me, recognize me; previous to that he used always to be very sociable, come along and bid you good morning and most times ask you in to have a drink, but probably a month or three weeks previous to the murder, he was the other way; very distant.

Q. Anything else?

971 A. Well, that is about that that I know about the prisoner.

Q. How was he as to attending to his business?

A. Well, I should say he was very neglectful.

Q. He neglected it, you think?

A. I should say yes, from what I have seen of him.

Q. What do you mean by neglecting it?

A. Well, he used to be regular drunk about every second week, or so.

972 Q. How long would those drunks continue?

A. I could not say, sir.

Q. More than one day?

A. Yes, sir; probably a week or ten days or two weeks at a time; I would not be positive as to just how long.

Q. Do you know as to whether he ate when he was drinking that day? Do you know whether he had his meals regular when he was drinking?

A. I could not say, sir.

973 Q. You could not say as to that?

A. No, sir.

Q. About what time usually did he start away from the market with his load?

A. Well, there was no specified time in regard to starting out in the morning; sometimes early and sometimes late; as a general thing I never start out before ten or half-past ten o'clock in the morning as a rule.

974 Q. From what you saw of the defendant during the two months, we will say, before this homicide, how did his conduct impress you—as being reasonable or unreasonable?

A. Well, I should say unreasonable, for his own benefit; he was drinking more or less all the time.

Cross-examination by Mr. Quinby:

Q. How did you see him drinking; he had to go into some place? 975

A. Yes, sir; I have drank with him; he has also drank with me, sir.

Mr. Quinby: You answer my questions if you will; I ask to have that last part of that answer stricken out as not responsive.

Mr. Sickmon: I insist on it staying there.

The Court: Let the answer stand. 976

Q. I desire to have you answer the questions that I put to you, if you please. I ask you when you saw him drink, you were either drinking with him or he was drinking with you. Is that it?

A. Yes, sir.

Q. What was his drink?

A. Well, as a general thing he drank whiskey, sir.

Q. What else did he drink?

A. Well, he used to drink beer, wine—as a general thing he drank whiskey. 977

Q. How long before this 29th day of March last, did you see him drink; what date was it?

A. I couldn't say to the date, sir.

Q. How long before?

A. Well, I have known him to drink—

Q. How long before this 29th day of March?

A. That I know him to drink?

Q. That you saw him drink? 978

A. Well, probably two months ago, previous to the 29th of March?

Q. That was the last time, two months before that?

A. No, sir; it was not.

Q. I want you to fix the last time?

A. That is impossible for me to do, sir. I didn't take no note of it.

Q. Fix it as near as you can?

A. I don't hardly know how long a time it was, sir.

Q. About how long a time? 979

A. Well, probably a week.

Q. What do you mean, by "probably a week?"

A. Probably it was a week more or less previous to the 29th of March.

Q. Can you tell whether it was more or less?

A. I could not say.

Q. If it was more, how much more was it?

A. Well, I wouldn't say whether it was more or less.

980 Q. Where was it?

A. Well, the last place I remember drinking with the prisoner was in Julius Haas', on the market.

Q. Hazard?

A. I don't know whether—how you pronounce the name; whether it is Hazard or Hass; it is a German name; I should pronounce it Haas.

Q. What time in the morning?

A. Oh, sometime between nine and twelve; I would not say just positive what time, sir.

981 Q. Was he peddling at that time?

A. Yes, sir; I believe he was dealing in eggs.

Q. Did he go away with his load that day?

A. I could not say, sir.

Q. Was he intoxicated on that morning?

A. Well, I could not say to that, sir, because I did not take no particular notice.

Q. Now, the next time before that, when did you drink with him?

A. Well, I cannot say, to tell you the truth.

982 Q. About how long before that?

A. Well, it might have been two or three days previous to that; might have been a little longer.

Q. Was it two or three days?

A. It might have been, sir.

Q. Where was it?

A. The last place I remember of drinking with him previous to that? I don't know, to tell you the truth.

983 Q. You do not know?

A. No, sir.

Q. Was he intoxicated on that occasion?

A. I could not say.

Q. How long before that, the second to the last time, did you see him drink?

A. Well, I couldn't say. I had seen him drunk so frequent that I could not state.

Q. No, we have not got up to any drunk yet; what was the last time he was intoxicated that you can recall? 984

A. Well, I can recall three different times.

Q. The last time, I ask you?

A. Well, I met him on the market.

Q. When was it?

A. Probably a month previous to the 29th of March—the murder.

Q. What time did you meet him on the market?

A. Well, in fact I see him around the market more or less that day. 985

Q. That day?

A. Yes, sir; I was around the market myself that day.

Q. What time was it you saw him intoxicated in the day about a month before this?

A. Well, all day, sir.

Q. Were you drinking with him?

A. I think we had two or three drinks; I can't be positive as to that; I remembered seeing him drunk. 986

Q. Was he around there all day, did you say?

A. Yes, sir.

Q. What was he doing?

A. Two or three times I saw him sitting down, something the same as he is there now, with his head hanging down, and I passed him, and once I came back, and I think I went inte Denny O'Brian's and he was there sitting the same day; that day I was trying to buy some apples on the market and I remained there all day. 987

Q. Did you see him walk that day?

A. Yes, sir.

Q. How did he walk?

A. He did not walk very straight, sir; he could scarcely navigate, sir.

Q. What do you mean by "navigate, sir?"

A. He could not walk straight; he kept going from one side of the sidewalk to the other, sir.

988 Q. That is one occasion; when before that did you see him intoxicated?

A. Well, the time I see him with Tom Carpenter, sir.

Q. How long ago was that prior to the killing?

A. Probably two or three months ago.

Q. Where was that?

A. At the Ontario House, the corner of North Division and Ellicott street, sir.

Q. What time of day was it?

989 A. Well, in the first place—

Q. What time of day was it?

A. It was probably five; between five and seven in the evening.

Q. What was Carpenter's condtion?

A. Well, I should judge he was a little intoxicated, too, sir.

Q. He was a little intoxicated?

A. Yes, sir.

Q. When before that did you see Kemmler intoxicated when he was with Carpenter—this time when you spoke that he was with Carpenter? 990

A. Sir?

Q. When did you see him intoxicated before the last time—the last time you saw him with Carpenter?

A. I could not say as to the time.

Q. Can you give us any time?

A. I might say a great many times, but I could not state no specified time.

991 Q. I ask you to tell us when it was that you now recollect seeing him intoxicated prior to the time he was with Carpenter?

A. I saw him intoxicated several times last summer so far as that is concerned, and more or less all winter.

Q. I am fixing the time before you saw him with Carpenter?

A. I can't state because I did not take no note of it.

Q. About how long before that? 992

A. Probably a week or two; I could not say as to the time, sir.

Q. Where was that?

A. Well, around the market; he was drunk more or less all the time around the market.

Q. You have said that forty or fifty times; when before the third time did you see him?

A. Well, I could not say.

Q. How long before that third time did you see him? 993

A. I could not state as to any specified time.

Q. Could you mention any other three occasions than those you have now mentioned?

A. Can I mention any more?

Q. Yes?

A. Yes, sir.

Q. Give us the day or as near the day as you can?

A. I can't give the date.

Q. Or day? 994

A. It is impossible to do that.

Q. Where was it?

A. I saw him last summer with a load of bananas when he was paralyzed drunk, out in Polock town, down on Townsend street.

Q. He was paralyzed?

A. Yes, sir; he couldn't walk at all, hardly, and he had some person with him.

Q. That is four times? 995

A. Yes, sir.

Q. Name another time?

A. I can't.

Q. You can not name any other times?

A. I can name several times, but I can not name exactly when it was.

Q. Name them?

A. I could not exactly, to a day.

Q. Can't name them?

996 A. No, sir; as I said before.

Q. Can you give any particular thing that occurred?

A. While he was intoxicated?

Q. Yes?

A. No, sir; I can't.

Q. So that four times is all the times that is fixed in your memory?

A. I have seen him drunk more than that, but I could state how many times.

Q. I want you to fix it if you can?

997 A. I can not; it is impossible because I did not take any note of it?

Re-direct examination by Mr. Sickmon:

Q. The four times that you have stated are not the only times you saw him intoxicated?

A. No, sir; they are not.

Q. To the best of your judgment, how many times have you seen him intoxicated? 998

Mr. Quinby: To that I object; they have been over that.

The Court: Yes, you have asked him that question; you may ask it again; it is not the best of your judgment; the best of your recollection.

A. Probably fifty times, more or less; I could not say as to how many times. 999

Re-cross examination by Mr. Quinby:

Q. Fifty times?

A. More or less; yes, sir.

Q. Which is it?

A. Well, I can't say; I am just giving——

Q. How much less?

A. I could not say. 1000

Q. How much more?

A. I could not say; I am just giving a rough estimate.

Mr. Sickmon: I object to that; they have been over it.

William J. Collins, sworn for the defendant.

1001

Direct examination by Mr. Sickmon:

Q. Where do you live?

A. At 131 Jefferson street.

Q. What is your business?

A. I am doorman at Number One station.

Q. Do you know the defendant, Mr. Kemmler?

A. I do; I never knew him until he was under arrest; locked up in Number One. 1002

Q. For this offense?

A. Yes, sir.

Q. What time was he brought to Number One station?

A. That I couldn't say; I was not on duty when he was—he was not brought to Number One when he was arrested.

Q. No, but he was brought to Number One on the day that he was arrested?

A. That I could not say. 1003

Q. Did you hear when he was arrested; at the time?

A. I heard of it; yes, sir.

Q. Do you recollect what day he was brought to Number One?

A. I do not; I was not on duty when he was brought there.

Q. What time did you see him in the day?

1004 A. Well, I think I was working the after hours that week.

Q. What do you mean by after hours?

A. Well, we have three doormen there. One goes on at eight o'clock in the morning; works until four; the other from four to twelve; and one from twelve to eight.

Q. What do you mean by the after hours?

A. From twelve until eight.

Q. From twelve in the afternoon until eight in the
1005 evening?

A. From twelve at night until eight in the morning.

Q. What time did you see him?

A. Well, I would not be positive, but I think it was them hours that I speak of; and I think it was, probably saw him two or three times between them hours.

Q. What is it?

1006 A. I probably saw him two or three times between them hours.

Q. Where did you see him?

A. In the cell.

Q. What are your duties as doorman?

A. Well, we are to receive patrol calls; take records of all prisoners; keep the books of the station-house and look up prisoners in the day time, but in the night time there is a man detailed for that purpose.

Q. This was night time then, according to your statement?

1007 A. Yes, sir; and he was locked up at the time I got to the station-house.

Q. Do you walk in front of these cells; can you, if you see fit?

A. Yes, sir.

Q. You think he was brought in after twelve o'clock at night?

A. No, I can't say that; I say when I saw him it was between those——

Q. Oh, yes; you do not know what time he came in? 1008

A. I do not.

Q. Did you go in front of his cell?

A. I did.

Q. Looked at him?

A. Yes, sir.

Q. Have you not any means of telling when this was?

A. I have not the least idea of telling when he was brought there, but to the best of my recollection I was 1009 on the after hours.

Q. It was either the same day of the killing or else the next morning, was it not, either the 29th or 30th?

A. That I couldn't say.

Q. How long did he remain at Station Number One?

A. Well, I think I had a leave of absence during the time.

Q. I say how long did he remain, do you know? 1010

A. That I could not say; I was just going to say that I had leave of absence on account of sickness in my family and he was removed from Number One during the time I had that leave of absence.

Q. Do you know when you had your leave of absence?

A. I could not tell unless I trace the books at the time.

Q. During the time that Kemmler was there, before you got your leave of absence, was liquor supplied to him? 1011

A. Yes, sir; I gave him some.

Q. Where did you obtain it?

A. Well, I sent out the man detailed at Number One for the liquor. His name was Walsh; I got it at Kiefer's; one bottle, I believe, was all that I obtained; what they call a pop bottle.

Q. Did you send a bill for this liquor to Mr. Hatch?

A. I did not.

1012 Q. Did anybody from your station, to your knowledge?

A. I could not say.

Q. What was Kiefer's first name?

A. George.

Q. Are you acquainted with George Kiefer's signature?

A. I think that is it.

Q. That is a bill for one dollar and a half, is it not?

A. Mr. Richard Collins—that is his writing; the other doorman. 1013

Q. Who is Mr. Richard Collins?

A. He is the other doorman.

Q. Is he any relation of yours?

A. No, sir.

Q. When did you receive this liquor?

A. The night I speak of.

Q. Now, then, this night that you speak of, can you fix that date in any way when it was?

1014 A. Not unless Mr. Kieffer has got a date for the night he gave the liquor.

Q. Did you get any liquor from John Davy?

A. I did not.

Q. For Mr. Hort?

A. I did not.

Q. Do you know Mr. Davy's signature?

A. I do not.

Q. Is that your writing?

A. No, sir; that is Richard Collins' writing.

1015 Q. What is the amount of that bill?

Objected to by people's counsel as immaterial.

The Court: That is not important.

Q. Where is Richard Collins?

A. He is the doorman of No. 1.

Q. Do you know where he is now?

A. Well, he will be—his hours on duty commence at four o'clock. 1016

Q. This afternoon?

A. And where he is now, I couldn't say unless he is at his home, 196 Carroll street.

Q. Four o'clock in the morning or afternoon?

A. Four o'clock this afternoon.

Q. You are positive this is his hand writing?

A. Pretty sure of it; yes, sir.

Q. You say you got a bottle of liquor?

A. I did not say that I got it; I sent out. 1017

Q. That it came there while you were there? What sized bottle was it?

A. It was a pop bottle.

Q. Was that given to the defendant?

A. I would not say it was given to him in my presence; but I think it was to the best of my knowledge.

Q. Did you afterwards see the bottle?

A. I believe I did.

Q. And it was empty?

A. Partly. 1018

Q. When did you afterwards see it?

A. Well, I could not exactly give the time; it was sometime between them hours.

Q. You had certain directions as to the amount of liquor you should give him?

A. No, I did not have the directions. The man in charge may have the directions.

Q. What is it?

A. There was a man placed in charge of Mr Kemmler. 1019

Q. Who gave him this liquor?

A. The man in charge.

Q. Who was the man in charge?

A. Well, that would have to be traced back; they have to change off. While he was there, there was different men put in charge; there are so many men in No. 1, I would not say positively.

1020 Q. Who has charge of that business?

A. What business is that?

Q. You say that at night there is some man to receive the prisoners and lock them up in their cells?

A. Edward Walsh.

Q. Was he the man?

A. No, sir; he was not; when we have a case of that kind, we put a watch over him.

Q. You did in this case?

1021 A. Yes, sir.

Q. Will the books at police station No. 1, show who this person was?

A. Yes, sir, if we can trace the date, it will show all the men.

Q. If this was on the 29th day of March last would your books of that date show who was put in charge of this man?

A. In the night time it would; yes, sir; in the day also.

Q. If he came in the day time, would it show who
1022 had charge of him at night?

A. It would; yes, sir.

Q. Who keeps those books?

A. Well, we make them out as a general thing and the sergeant keeps—

Q. You say, "We make them out;" whom do you mean by "we"?

A. Well, the doormen.

Q. Yourself and Mr. Collins?

1023 A. And Mr. Smith.

Q. What is Smith's first name?

A. Clement.

Q. Where are these books kept?

A. In the station.

Q. Are they open to inspection?

A. Well, I believe they are by getting permission from the captain.

Q Who is the captain in charge?

A. Captain Quinn. 1024

Q. Did you see this person, whoever he was, in charge that night, give Kemmler liquor?

A. I did not, to the best of my opinion.

Q. Did you give him any yourself?

A. I think not.

Q. Will you swear that you did not?

A. Well, I would not exactly swear, but the best of my opinion, I did not.

Q. Is it not your best recollection that you did?

A. No, I would not say that. 1025

Q. Did you see him after this first night that you found him in the cell?

A. I did.

Q. Where?

A. In the cell.

Q. At police station number one?

A. Yes, sir.

Q. You do not know how long he was kept there?

A. I do not.

Q. You obtained a leave of absence while he still remained there? 1026

A. Yes, sir.

Q. After this first night, do you know of any more liquor being obtained for him?

A. Not that I could swear to or know of; I heard there was some; I saw those——

Mr. Quinby: He does not ask that. 1027

Q. From whom did you hear it?

A. I simply saw those papers you have there.

Q. These bills we have here? who delivered these bills to you?

A. Nobody.

Q. Where did you obtain them?

A. I saw them on the desk.

Q. In what office or what room?

1028 A. In Number One.

Q. In what room in Number One?

A. In back of the desk, in the doormen's department, or the captain's, whoever——

Q. Do you know who left them there?

A. I do not; I supposed Mr. Collins, the doorman that made them out.

Mr. Quinby: They do not ask what you supposed.

1029 The Court: No.

Mr. Sickmon: We supposed we had the other Collins, the man in whose handwriting these are made out.

Q. Who is on duty now at police station Number One, as doorman?

A. Mr. Smith relieved me this morning at eight o'clock, or after eight o'clock.

1030 Q. Did you give any instructions to anybody as to giving this man liquor?

A. I believe I did to the man that was in charge.

Q. What instructions did you give him?

A. Well, I couldn't exactly say to that; any more than give it to him when he thought it was best to give it to him to keep him quiet.

Q. Why?

A. Well——

1031 Q. Was he noisy? You say "to keep him quiet."

A. No, he was not noisy.

Q. Then what do you mean by keeping him quiet?

A. Those were my instructions.

Q. From whom did you receive those instructions?

A. I believe the doorman that I relieved; I wouldn't say for sure; either the doorman or Mr. Walsh.

Q. Who purchased this liquor?

A. Well, Mr. Walsh did; only purchased one bottle.

Q. You purchased one bottle? 1032

A. Well, I did not; Mr. Walsh.

Q. What were the instructions you received from Mr. Walsh as to giving him liquor?

A. I wouldn't say I received them from Mr. Walsh.

Q. You received them from somebody?

A. It was either him or the doorman I relieved that night.

Q. And you can not recollect which?

A. I can't.

Q. Can you tell any—— 1033

The Court: What is the purpose of this testimony?

Mr. Sickmon: It is the purpose to show the condition of this man at the time that he landed in this police station—they say it was necessary to give him whiskey to keep him quiet—as bearing upon the condition that he was in when this killing took place.

1034

A. I did not get instructions for to keep him quiet; it was just to give him a little liquor.

Q. You testified you were given instructions to give him liquor enough to keep him quiet.

A. I didn't testify that I got instructions.

Q. But those were the instructions that you gave the man in charge?

A. I did not.

Q. Did you not so testify a moment ago?

A. No, I beg your pardon; I delivered the bottle to a man that had charge of Mr. Kemmler there. 1035

Q. What instructions did you give him?

A. Well, the same as I received.

Q. What were those?

A. To get some whiskey for him when he thought he wanted it.

Q. To give him whiskey any time he wanted it?

A. Yes, he asked for it; as I understand himself.

1036 Q. To give him whiskey any time he wanted it?

A. No, not any time he wanted it.

Q. To give it to him when?

A. Well, to give it to him when they thought it was right to give it to him; I don't know for what purpose they gave it to him.

Q. You told the person in charge to use his judgment about giving him whiskey did you?

A. I suppose he received his instructions from somebody else.

1037 Q. I do not ask you what you suppose?

A. He was in the cell room at the time I went to work, the man that had charge of him—he was in the cell room when I relieved——

Q. During the eight hours that you were on duty, you only got one bottle of whiskey?

A. That was all; I didn't get it myself.

Q. Who relieved you?

A. Mr. Smith.

1038 Q. Did you give him any instructions as to giving this man liquor when you left?

A. I believe not.

Q. You said nothing to him about it?

A. I believe not.

Q. Did not give him any information that you had had any whiskey?

A. I believe not, it was that time in the morning and the captain was up and I suppose if they saw fit then, they could give him liquor; they were up in charge.

1039 Q. You gave no instructions then?

A. I think not.

Q. Left it for the captain?

A. I believe I did.

Q. You understood that the instructions which you had received came trom the captain?

A. I believe it was.

Q. In the first place?

A. I believe it was from the captain.

Re-cross examination by Mr. Quinby: 1040

Q. You understood that he had been asking for a drink of whiskey and that is the reason you gave it to him?

A. Yes, sir; that is, I heard he wanted a drink of whiskey.

Re-direct examination by Mr. Sickmon:

1041

Q. Did you examine him at all?

A. I did not.

Q. Was the cell lighted when you looked in?

A. Yes, sir.

Q. Did you make any examination as to his physical condition as to whether he needed whiskey, or not?

A. I did not.

Q. Can you now say?

A. I thought that he looked kind of bad; that is all. 1042

Q. And needed some whiskey?

A. But I have saw people worse.

Q. You have seen people who had been drinking that were in worse shape than he was?

A. I believe I have; yes, sir.

George Meyer, sworn for the defendant.

1043

Direct-examination by Mr. Sickmon:

Q. Where do you live?

A. On the Island, foot of Michigan street.

Q. What Island?

A. The beach.

Q. Beyond the Buffalo river?

A. Yes, sir.

1044 Q. Do you know William Kemmler, the defendant?

A. I saw him a few times.

Q. How long have you known him?

A. About a year.

Q. Do you know him by any other name than Kemmler; any nick-name?

A. He went by the name of "Sandy;" that is all the name I knew him.

Q. When did you first get acquainted with him?

1045 A. I see him around there: he fished one winter.

Q. What year was that?

A. A year ago last winter.

Q. That was the winter of '87 and '88?

A. Yes, sir.

Q. Were you fishing?

A. Yes, sir.

Q. About what time in the winter did you commence fishing?

1046 A. Well, about in January.

Q. Fish through the ice?

A. Yes, sir.

Q. How often did you see him during that winter?

A. I see him four or five different times, just passed him.

Q. I mean while you were fishing out there, how often did you see him?

A. Well, I tell you I passed by him just a couple of times maybe in the morning or in the afternoon, coming back: he used to walk in and out. 1047

Q. Where else have you seen him?

A. Well, I see him once in Gallagher's saloon.

Q. Have you seen him on the market?

A. No, sir.

Q. Have you seen him intoxicated?

A. Yes, one night.

Q. Where?

A. 'Gene Gallagher's saloon.

Q. Where does Mr. Gallagher keep? 1048

A. Foot of Michigan street.

Q. What time in the year was that?

A. About in the month of June, I guess.

Q. Who was with him?

A. No one.

Q. What is it?

A. Nobody.

Q. Do you know a man by the name of Duster.

A. Yes, sir.

Q. Was he with him or was he? 1049

A. That night there was me and him and a fellow by the name of Stewart.

Q. What were you doing?

A. Seanding around the front of the saloon, and Sandy was full inside, and a friend of mine asked me to get my wagon, man, and go home with him, and went about half ways home with him.

Q. What was Kemmler doing in the saloon?

A. I guess he was drinking.

Q. What was he doing; did you see him? 1050

A. Yes, sir.

Q. Did you see him walk?

A. Yes, sir.

Q. How did he walk?

A. He walked straight.

Q. What is it?

A. He walked pretty straight.

Q. Did he stagger any?

A. Well, he used to once in a while. 1051

Q. Did you go home with him?

A. I went about half ways home with him.

Q. What kind of a rig did he have there?

A. He had a spring wagon?

Q. One horse or two?

A. One horse.

Q. Which way did you start to go home?

A. Went up Michigan street to Elk and out Elk to Smith.

1052 Q. On the way did you cross a railroad track?

A. No, sir.

Q. What is it?

A. No, sir.

Q. Did you come to a fence or drive by a fence on a railroad track?

A. Yes, sir.

Q. Where was that?

A. Down near the Central—we went up Smith 1053 street, and came down some alley, and Sandy ran his horse into the fence.

Q. He ran his horse—

A. Into the fence.

Q. Who do you mean by Sandy?

A. That man there. (Indicating defendant).

Q. Which man: the defendant here?

A. Yes, sir.

Q. The person on trial here?

A. Yes, sir.

Q. Did he say anything about jumping the fence?

1054 A. Yes.

Q. Just tell us what he said about it?

A. Well, he says, "Wait till you see the horse jump the fence," and he run the horse.

Q. How far were you from the fence at the time he said this?

A. About ten feet.

Q. Had he been running his horse before this?

A. Yes.

1055 Q. When he said, "See the horse jump the fence," what did he do then?

A. Run the horse into the fence and the horse turned side-ways; we got off of the wagon and went home; that is all I see of him, and never was with him since.

Q. Who was with him besides yourself?

A. A fellow by the name of Duster.

Q. Duster was with you when you got on the wagon?

A. Yes, sir. 1056

Q. How far did he run his horse?

A. Towards out Smith street; he came down an alley-way and run the horse into the fence and that is the last I seen.

Q. When he came to this fence did he try to make this horse jump over it?

A. The horse run into it, and turned sideways.

Q. What did he do then; did he try to make him jump the fence?

A. No, sir; he drove right along on the side of the fence. 1057

Q. What time of day was this?

A. It was not in the day; it was in the evening about eleven o'clock.

Q. From what you saw of the defendant on that occasion, how did his conduct impress you; as being reasonable or unreasonable?

A. Why, pretty fair; he talked pretty sensible.

Q. I mean his conduct—his driving; how did that impress you—as being reasonable or unreasonable? 1058

A. He drove the horse along with his head down; he did not talk much to us.

Cross-examination by Mr. Quinby.

Q. What did you say there just a minute ago—he talked pretty sensibly?

A. Yes, sir. 1059

Q. He had been drinking some; feeling pretty good, was he not?

A. Yes, sir.

Q. Having some fun with the horse?

A. No, sir.

Q. He was running the horse, you say?

A. Same as any one would drive a horse.

Q. How?

1060 A. He drove the horse same as any one would drive a horse.

Q. What do you mean by running the horse, then?

A. Driving him, of course.

Q. Was he running or simply trotting him along?

A. Trotting along.

Q. Trotting along?

A. Yes, sir.

Q. When he got to the end of Smith street, he
1061 turned off by this fence?

A. Yes, sir.

Q. That is all there was to it?

A. That was all.

Re-direct examination by Mr. Sickmon:

Q. What kind of a fence was this?

A. That was a wooden fence.

1062 Q. How high?

A. About eight foot; six or eight foot.

Q. Would you call that sensible, do you, running into a fence of that height?

Objected to by District Attorney.

The Court: This is not cross-examination.

A. I didn't say it was sensible.

1063 Q. How do you regard his conduct of driving that horse into that fence?

Objected to by the District Attorney.

Q. Do you regard that as reasonable or unreasonable?

Mr. Quinby: He has been over that, Your Honor.

A. I couldn't say whether it was, or not. 1064

Q. What is it?

A. I couldn't say whether it was, or not.

PAUL MARSHALL, sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. Where do you live?

A. 45 Seneca street.

Q. What is your business? 1065

A. Huckster.

Q. How long have you followed that business?

A. Well, I have followed it off and on for about ten years.

Q.. At what market do you get your goods?

A. Elk street.

Q. Do you know the defendant, Kemmler?

A. I have known the man for about two years. Never been real well acquainted with him only about a year back. 1066

Q. During that time, how often would you see him?

A. Well, I could not say exactly; some days I would see him; some weeks I would see him every morning; some mornings I would not see him only two or three times during the week.

Q. Where would you see him?

A. Well, we generally met all together—as a general thing, we used to stop on the corner of Perry street and West Market street. 1067

Q. That is where you usually met him?

A. Yes, sir; we used to stop and there and talked for a while, all together.

Q. Have you seen him intoxicated?

A. Well, I have seen him a few times; been with him.

Q. Where did you first see him intoxicated?

1068 A. The first time I met him was on Canal street about a year ago.

Q. Whereabouts on Canal street?

A. Well, we met in Hud' Cleveland's—93.

Q. What was he doing?

A. He was selling poultry at the time; himself and George Taylor was helping him; I was working with Taylor and him; two of us together, and I came in and we all started to drinking and drinked all that night around together.

1069 Q. What time of day did you meet him?

A. It was about five o'clock; between five and six o'clock, somewheres about; I would not say exactly.

Q. And you commenced drinking at five o'clock?

A. Well, they was pretty full then; himself and Taylor was pretty full at the time; I wouldn't say full; I should say drunk; I would not say full.

Q. Then you started with them to commence drinking?

1070 A. Yes, sir.

Q. Where did you drink?

A. Well, we drank in Hud. Cleveland's; we went from there to Shorty Law's; it is 153 Canal; went from there to the Olympic; drank in there and came around on Erie street; went from there on North Division.

Q. What did Kemmler drink?

A. They drank whiskey most of the time; once in a great while he would take a glass of beer.

Q. Did you have any supper?

1071 A. No, sir.

Q. How late that night did you drink?

A. Well, I would not say, exactly; it was between ten and eleven when I left him and we started home then; met him the next morning and he was pretty full the next morning; claimed he hadn't been home; got too full.

Q. What time the next morning did you meet him?

A. About ten o'clock.

Q. Was this person who was with him the night before, with Kemmler then? 1072

A. No, sir; he was with me at the time; I stopped with him.

Q. Did you see Kemmler during that next day?

A. Nothing only in the morning; I loaded and went away; I didn't see him only a little while.

Q. He was intoxicated at that time?

A. Yes, sir.

Q. Now, when after that did you see Kemmler intoxicated? 1073

A. Oh, I have seen him several times; I couldn't say exactly; I have been with him good many times on a spree myself; three or four of us together; I couldn't say exactly.

Q. When you went on a spree upon any occasion, how long did you stay; more than one day?

A. Yes, as a general thing: I couldn't say exactly; as the fellow says "As long as your money lasts;" sometimes two or three days—as much as a week. 1074

Q. Did you drink night and day?

A. Well, the most of the while.

Q. What did Kemmler drink upon those occasions?

A. Generally drank whiskey; I never knew him to drink a great deal of anything else.

Q. Was Kemmler with you when you went on a spree, that you say was two or three days or a week?

A. I have been with Kemmler two and three days to a time on a spree; yes, sir.

Q. Where would you go? 1075

A. Well, that is pretty hard to tell.

Q. I mean would you go away from the city of Buffalo or here?

A. No, sir; I never was away from the city with him.

Q. When next after this time that you met him on Canal street did you go on a spree with him?

A. Well, I couldn't say, as I was with him on a

1076 spree together for quite a while till after that; most of the time I met him down in Miller's barn on Myrtle avenue, a month or so afterwards, and went on a spree from there together.

Q. Where did you go that time?

A. Well, we stopped around the barn there; around in the saloons on Michigan street.

Q. How long were you gone on that occasion?

A. Well, that lasted only one night.

Q. When was it that you were with him upon a
1077 spree when you say away two or three days?

A. That was about a year ago; I wouldn't say exactly, but I don't remember; I never kept no track of it.

Q. Somewhere in the neighborhood of a year ago?

A. Yes, sir.

Q. Where did you start that time?

A. I wouldn't say, exactly; I think we started on the market; we all started drinking together.

1078 Q. Elk street market?

A. Yes, sir; in Denny O'Brian's.

Q. How many of you were together?

A. Oh, there was eight or ten of us when we started.

Q. Thinned out as you traveled?

A. Kept thinning out as we traveled along.

Q. And on the wind-up how many of you were together?

A. Well, I could not say that exactly.

Q. What did Kemmler drink upon that occasion?

1079 A. He generally drank whiskey; I never knew him to drink a great deal of beer.

Q. Have you noticed anything peculiar about Kemmler in his conduct and actions?

A. Well, not as I could say, only when he was full; I have heard the man talk same as lots of people would, sometimes.

Q. How many times, to the best of your recollection, have you seen Kemmler intoxicated?

A. It is hard to tell. 1080

Q. Give us your best judgment; give the jury some sort of an idea?

A. I would say about forty or fifty times; between forty and fifty.

Cross-examination by Mr. Quinby:

Q. How many times have you been intoxicated during that time?

A. Well, I generally get drunk every other day; 1081 to tell the truth.

Q. You sometimes do not skip a day, do you?

A. Very seldom, if I make money enough.

Q. You spend all the money that you can get for whiskey, do you not?

A. Yes, sir; I do.

Q. Make it a business?

A I make it a business; I spend all I got.

Q. When you are drunk, you think Kemmler is drunk, do you not? 1082

A. No, sir; I do not.

Q. How can you tell?

A. I can tell if a man is drunk; always could.

Q. You can tell when you are drunk, if another man is drunk, can you; you say that you are drunk about every other day yourself; now, when you are drunk, how can you tell whether another man is drunk?

A. A man can tell if he drinking with a party, 1083 drinking together and you can tell when you are full, and we both drink the same amount.

Q. You can tell when you are full; I presume that is true; can you tell when the other fellow is full?

A. If we both drink the same amount.

Q. You do not reason it out in that way, do you? How long have you been drinking whiskey, getting drunk about every other day?

1084 A. About six years; I don't generally drink whiskey.

Q. Kemmler good company?

A. Well, he always was to me so far as I have traveled with the man.

Q. When Kemmler—you say on one occasion you went with him three days; did he have his wagon with him?

A. Yes, sir.

1085 Q. He would go to the market in the morning and get his load?

A. He didn't load this time; we was off three days, he did not load at all; we was around all over the town; had about two hundred dollars, and I had forty or fifty, and we spent all the money and then we quit; we both drank together; went around together.

Q. With this horse and wagon?

A. Yes, sir; the covered wagon and a little mustang horse.

Q. When do you fix that time?

1086 A. It is about a year ago; I wouldn't say exactly.

Q. Where did you sleep nights?

A. We stopped in the hotel some nights; we generally put the horse up in Miller's barn.

Q. What hotels did you sleep at?

A. Generally stopped at the Globe.

Q. Where is that hotel?

A. 256 Michigan street.

Q. Who kept it?

1087 A. A man by the name of Joslyn.

Q. How many nights did you stop during this three days' spree of yours?

A. I couldn't say that; I don't remember.

Q. Did you stop one night?

A. Might have stopped two nights or three.

Q. Did you stop at least one night there?

A. Yes, sir.

Q. You and Kemmler?

A. No; Kemmler didn't stop there. 1088

Q. I asked you where Kemmler stopped?

A. I don't know where he stopped at all; I stopped there myself.

Q. Did he go home?

A. No, he didn't go home.

Q. How do you know he did not?

A. He said he didn't; that is all I knew about it. I wouldn't take an oath that he did not; he claimed he did not.

Q. What time do you generally get intoxicated in the day time; when do you consider yourself—what time of day—intoxicated? 1089

A. Well, sometimes about two o'clock; sometimes about six.

Q. It runs between two and six o'clock. That is all.

Re-direct examination by Mr. Sickmon:

Q. When was the last time that you saw Kemmler intoxicated before the killing? 1090

A. It was on a Sunday before.

Q. Was that day the last time that you saw him?

A. Yes, sir; at 22 Myrtle avenue.

EUGENE GALLAGHER, sworn for the defendant.

Direct examination by Mr. Sickmon: 1091

Q. Where do you live?

A. Foot of South Michigan street.

Q. What is your business?

A. Porter of Elk street market.

Q. A little louder?

A. I am porter of Elk street market and keep a saloon.

1092 Q. How long have you been porter of Elk street market?

A. Since January, when the council organized. I think it was in January.

Q. Since last January?

A. Yes, sir.

Q. You are acquainted with the defendant, Kemmler?

A. Yes, sir.

Q. How long have you known him?

1093 A. Since a year ago last January, I believe; 1887.

Q. Where did you first meet him?

A. Met him at my house.

Q. On Michigan street?

A. Yes, sir.

Q. Have you seen him intoxicated?

A. Yes, sir.

Q. Upon how many occasions since you have known him have you seen him intoxicated?

A. Four times.

1094 Q. How many?

A. Four times.

Q. Where was the first time?

A. Outside of my door.

Q. Where had he been on that occasion, if you know?

A. On his peddling wagon he came over there.

Q. What is that?

A. He came from across the creek, over to my place, with his wagon. 1095

Q. Do you know what he was doing at that time?

A. He was in the huckster business.

Q. Do you recollect an occasion when he was fishing on the ice?

A. Yes, sir; he fished for me all the time he fished there.

Q. You have mentioned one time. When was the next occasion when you saw him intoxicated?

A. Saw him at my house again. 1096

Q. When was that?

A. A short while after that; about a week, I believe; something like that.

Q. And when next?

A. Saw him on the market the next.

Q. What time was that?

A. That was in February, I believe.

Q. Last February? That was after you became porter of the market?

1097

The Court:

Q. Does say he last February?

A. Last February.

Mr. Sickmon (resuming):

Q. That is three times that you have seen him intoxicated. When next after that? 1098

A. On the market.

Q. Then you saw him twice on the market intoxicated, and twice when he came to your place?

A. Yes, sir.

Q. And how did you know that he was intoxicated?

A. If a man rolls on the ground and stands on his head he is intoxicated.

Q. When was it that he rolled on the ground; which occasion was this?

A. Both occasions that he was over to my place. 1099

Q. Just tell the jury what he did?

A. Well, he came there——

Q. Commence at the first time and tell them all that he did after he came there?

A. From the first time he was drunk?

Q. Yes.

A. Well, he came to my place in his wagon pretty

1100 well under the influence of liquor, and he got drunker there; and he had some rigging, fishing tackle, boat and one thing another; he wanted me to buy them; I didn't want them, but he forced them onto me. There was other people wanted to give him more money for them, and he wouldn't take it, so I bought the stuff from him. He wanted to burn the stuff up or sell it to me, just as I said. Said he just as lief take it out and burn it; said he would like to see me get it cheap. So I bought it. That was all, the first
1101 time. Then he went away. I sent him home. Sent a few boys home with him, I believe, the first time. I wouldn't say whether it was the first or second that I sent them home with him.

Q. How much did you give him for the tackle?

A. Gave him ten dollars. Ten or eight, I wouldn't be sure which.

Q. How much was he offered for it?

A. Mr. Shea offered him thirteen dollars for it, I
1102 believe. I would not be sure of that.

Q. Of what did it consist; what was it composed of; what was it?

A. Net, hooks and line, set-line, skill, grapple. That is about all.

Q. How much was it worth?

Objected to by the District Attorney.

The Court: Let him tell. He evidently got a nice
1103 bargain out of this drunken man. Let him tell how much he made.

A. The stuff was worth probably thirty-five dollars.

Q: Did he refuse to sell it to this person who offered him thirteen dollars?

A. Yes, sir.

Q. Said unless you bought it he would burn it up?

A. Yes, sir.

Q. This second occasion when he was there, tell the jury what he did? 1104

A. Well, he came there rolling drunk, on the next occasion; about eight o'clock in the evening, I believe.

Q. About what time?

A. Eight o'clock.

Q. In the evening; who was with him upon that occasion?

A. Was not anybody that I remember of.

Q. Came there alone; do you know where he had been? 1105

A. I could not say.

Q. Tell the jury what he did on that occasion?

A. I know he raised lots of trouble for me; tried to get him home and could not get him home; he started a few rows in the house; wanted to fight a small boy there, and he started to fight with another fellow.

Q. What else?

A. Well, that is about all; he started—I got him off home; I believe that is the time I sent the two boys home with him. 1106

Q. Was one of the persons whom you sent home with him named Duster—called Duster?

A. I could not say who the two boys was.

Q. Was Meyer one of them?

A. Meyer, I believe, was one of them.

Q. Meyer and somebody else went with him; did he walk straight, steady; walk straight?

A. No, he could not stand.

Q. When you saw him on the market on this next occasion, tell what he did? 1107

A. Didn't see much of him; I run away from him that time; came into Julius Haas' saloon, and I see Mr. Shea carry him mostly in, and I got out before he seen me; that is all I seen.

Q. How was it on the fourth occasion?

A. The fourth occasion he was selling chickens; was not very drunk that night—time; it was in the night.

1108 Q. From what you saw of him upon these four occasions, how did his conduct impress you; as being rational or irrational; reasonable or unreasonable?

A. I thought it was unreasonable.

Cross-examination by Mr. Quinby:

Q. Was drunk; that is what you mean; you mean he was drunk?

1109 A. He was drunk, yes.

Q. You say you are porter of the Elk Street Market?

A. Yes, sir.

Q. And have been since the first of January, last?

A. No, sir; in January sometime.

Q. How?

A. In January, when the Council organized; I don't know exactly what time it was.

1110 Q. You were appointed under this last Common Council, were you?

A. Yes, sir.

Q. And have been porter ever since?

A. Yes, sir.

Q. And what are your duties—to be around the market there in the day time?

A. In the morning—open up.

Q. How long, in the morning, are you around there?

1111 A. Go there at five in the morning, week on and off we are; stay—go home and get breakfast, come back, stay until ten or eleven o'clock.

Q. You have been there one week on and one week off, have you, since the time of your appointment, in January?

A. In the fish business there, my partner used to close all the time, for a month or so there, and I used to open every morning.

Q. Do you have any duties, as porter of the Elk Street Market, that you have to do? 1112

A. Yes.

Q. Now, are you around through the market there attending to your duties?

A. Yes.

Q. You have been every day, have you, since your appointment?

A. Lost one or two days; I was sick, I believe.

Q. Well, except the one or two days that you were sick? 1113

A. Yes, sir.

Q. How many times have you seen Kemmler on the market during that time, since you were appointed; most every day?

A. No.

Q. About how many times?

A. Ten times, probably, more or less.

Q. You spoke about—on this first occasion when you saw him, when Kemmler came there, you say he had been drinking, did you? 1114

A. Yes, sir.

Q. Intoxicated, was he, when he came there to your place?

A. He was intoxicated when he came there; not very drunk.

Q. And you gave him more to drink, did you, in your place?

A. I had to; I couldn't get rid of him.

Q. Did you give him more to drink? 1115

A. Yes.

Q. Do you give men drink when they come to your place intoxicated?

A. Not if they are too drunk, I do not.

Q. Was he too drunk to give anything to?

A. Not the first time he came there.

Q. But you got him drunk there?

A. Yes, sir.

1116 Q. You still hold a license, do you? do you still hold a license as saloon-keeper?

A. Yes.

Q. Now, this second time he came there, he came there drunk, did he? These four times that you have mentioned to the counsel—

Mr. Sickmon: He only mentioned twice.

1117 Q. He came to your place twice?

A. Yes.

Q. Did you give him drink there?

A. Yes, sir.

Q. Got him drunk again—drunker than he was?

A. Yes.

Q. You buy fishing tackle of these firshermen, do you not?

A. No.

Q. Haven't you ever bought any before?

A. Bought it from Barnum.

1118 Q. Have you not bought of these fishermen out there?

A. No, sir; no fishing tackle.

Q. Haven't you loaned money on fishing tackle?

A. No, sir.

Q. Haven't you had fishing tackle; haven't you bought other than Barnum's?

A. Yes, sir.

Q. Where did you get that?

1119 A. Got it from Barnum.

Q. Other than Barnum's, I am speaking about.

A. Other than Barnum's?

Q. Yes.

A. Some—Pat. Smith's.

Q. Are you in the fishing business, too?

A. Not now.

Q. How?

A. I am not in it now.

Q. Were you at this time you bought this stuff of Kemmler? 1120

A. No, sir.

Q. He was drunk when you bought it of him, was he?

A. Well, he was a little bit under the weather.

Q. You have said he was drunk; did you not?

A. He was drunk—call a man drunk; that is, got a few bowls in him.

Q. You made the trade with him?

A. Yes, sir. 1121

Q. You made the trade with a drunken man?

A. Yes. He forced it onto me. I didn't want to take the stuff from him.

Q. Oh, yes, I understand that.

Mr. Sickmon: I object to any such comments by the counsel.

MICHAEL O'LAUGHLIN, sworn for the defendant. 1122

Direct examination by Mr. Sickmon:

Q. How old are you?

A. Going on fifteen.

Q. You were born here in Buffalo?

A. No, sir.

Q. How long have you lived here?

A. I have lived here, I guess, about twelve years. 1123

Q. What have you worked at?

A. Well, I worked for Mr. Kemmler.

Q. What did you have to do? What were you doing?

A. I was peddling.

Q. Around with one of his wagons?

A. Yes, sir.

Q. With him?

1124 A. Yes, sir.

Q. How long were you with Mr. Kemmler?

A. I was with him, I guess, about four months.

Q. Little louder?

A. Four months.

Q. When was this, Michael?

A. About a month ago.

Q. Month ago you quit; so that when you quit—get this so that we understand—when did you go to work for Mr. Kemmler?

1125 A. Well, I couldn't say when I went to work for him, but I went to work for him when he was on Carroll street; worked for him half a day when he lived on Carroll street.

Q. I am talking about the time when you went to work for him, and worked this month that you tell about?

The Court: Four months.

1126 Q. Four months; where was he living; do you know that?

A. Yes, sir.

Q. Was he living on South Division street?

A. When I went to work for him?

Q. Yes, the last time when you worked the four months?

A. Yes, sir.

Q. Who was working for him besides you?

1127 A Well, Dennis McMahon, he worked for him before me, and then one day I met him and I told him—

Q. We do not care for that talk you have. Was a man that they call Yellow working for him when you worked?

A. Yes, sir.

Q. When did you quit working for him?

A. I quit him Monday before the 29th; didn't go to work Monday.

Q. And from the time that you went to work for him down to that time, you worked right along? 1128

A. No, sir; I ain't worked since.

Q I know; but when you first went to work for him the second time, you worked from that time right down to this Monday that you have spoken of?

A. Yes, sir.

Q. You went with this wagon that Mr. Kemmler peddled with?

A. Yes, sir.

Q. How many of you went—traveled with that wagon? 1129

A. Well, me and Billy went first, and then Yellow didn't have no work and Billy hired Yellow on the market.

Q. In the first place you and Billy—by Billy you mean the defendant?

A. Yes, sir.

Q. Worked alone?

A. Yes, sir. 1130

Q. Then when Yellow came the three of you went with the wagon together?

A. Yes, sir.

Q. What time would you start in the morning?

A. We used to go away; sometimes we wouldn't start from the house until ten o'clock.

Q. Would you stop at saloons ever?

A. Yes, sir.

Q. You may tell this jury what you know about Mr. Kemmler's drinking?

A. Well, I know him that he used to get drunk about sometimes four and five times a week. 1131

Q. Used to get what?

A. He will get drunk three and four and five times a week.

Q. Was this so during all the time that you worked for him?

A. No, sir; there was about a week that he did not drink anything but cider.

1132 Q. With the exception of this one week, besides this week, was it so during all that time?

A. Once in a while he would not drink maybe for two days, then he would drink for a week right hand running.

Q. And this would happen four and five—from three to five times a week?

A. Yes, sir.

Q. How would you know that he was drunk?

A. He would be staggering.

1133 Q. During all this time with the exceptions that you have stated?

A. Yes, sir.

Cross-examination by Mr. Quinby:

Q. Did you continue to work for him up to the time that he killed his wife?

1134 A. No, sir.

Q. How long before that did you quit?

A. I quit four days before that; the Monday before.

Q. How long before that had you and Yellow and he been travelling together, peddling?

A. Me and Yellow we was working together Saturday and that was the last day.

Q. How long had Yellow been there to your knowledge?

A. I guess Yellow must have worked there, I guess about six or eight weeks; six weeks, something of that kind. 1135

Q. Did you go to the market with him in the morning?

A. Yes, sir.

Q. Who would buy the stuff to peddle?

A. Well, the both of them; I used not to go with them; the both of them would buy it together.

Q. Where would you stay on the wagon?

A. I would watch the horse; yes, sir. 1136

Q. Then you would start out to peddle this stuff around the city?

A. Yes, sir.

Q. What would you do?

A. I would make sales.

Q. Would not come home to dinner until you got your load sold out?

A. Well, we used to have our dinner in saloons.

Q. How long did you say you worked for him?

A. About four months. 1137

Q. You did not any keep track of the number of times you saw him intoxicated, did you?

A. No, sir.

Q. He could sell his vegetables, could he not, all right?

A. Sometimes he would lay on the wagon and me and the other——

Q. How many times did you see him lying on the wagon? 1138

A. Well, I guess about twice.

Q. Saw him twice; with the exception of these two times he would sell, would he not?

A. Well, sometimes he would spoil sales and sometimes he——

Q. Did you ever know him to sell anything?

A. Yes, sir.

Q. You have known him to make sales?

A. Yes, sir.

Q. Who would sell the most; he, or Yellow? 1139

A. Sometimes I would sell the most and sometimes Yellow would sell the most and sometimes William would sell the most.

Q. Sometimes Kemmler would sell the most?

A. Yes, sir.

Q. When they got back would you go back to the barn with them?

A. Yes, sir.

1140 Q. Would they there figure up?

A. They used to go in the house and figure up; they used to pay me in the barn.

Q. They would leave you out there?

A. Yes, sir.

Q. And they would go into the house and figure up their day's work?

A. Yes, sir.

1141 CAPTAIN BARRY, recalled.

Examined by Mr. Sickmon:

Q. What time was Kemmler brought to station Number One?

A. Between seven and eight o'clock on the evening of the 29th of March.

Q. How long did he remain there?

1142 A. He was brought to headquarters at that time.

Q. I said how long did he remain there before he was taken to jail?

A. I don't know.

DENNIS MCMAHON, recalled for the defendant.

Direct-examination by Mr. Sickmon:

1143

Q. You were well acquainted with Mr. Kemmler?

A. About five months.

Q. And those five months that you knew him and saw him were the five months preceding the killing of this woman, the five months right before she was killed?

A. Yes; I worked with him.

Q. Did you know about Kemmler's drinking?

A. Yes, sir. 1144

Q. You may tell the jury what you know about that?

A. How?

Q. Just tell about what you know about Kemmler's drinking?

A. See him drinking about forty times.

Q. Forty different times?

A. About forty times I seen him drinking in saloons.

Q. Did you ever see him when he was drunk? 1145

A. Yes, sir.

Q. How did you know that he was drunk; what showed you that he was drunk?

A. Staggered.

Q. How many times did you see him drunk?

A. About ten or eleven times—twelve times.

Q. When you saw him drinking about forty times, tell us what you mean by that?

A. Why, drinking.

Q. Well at one time or forty different times; what do you mean by that? 1146

A. Forty different times.

Q. And about ten or eleven times you saw him so that he staggered?

A. Yes, sir.

Cross-examination by Mr. Quinby:

1147

Q. When you say forty times, that is a guess, is it not; you guess about it?

A. Yes, sir; I did not say he drank that——

Q. Can not say exactly?

A. No, sir.

Q. That is to say, you have seen him go into a saloon about forty different times and take a drink of beer; is that it?

1148 A. I guess it is about that many times.

Q. How do you place it; you saw him drunk ten times; how do you fix it at ten times?

A. See him down at the market once.

Q That is once?

A. And over in Martin's saloon six or seven times, and lots other places.

Q. What do you mean by drunk; anything more than he would stagger a little in his walk?

A. Staggering around; could not hardly walk.

1149 Q. Couldn't hardly walk?

A. Yes?

Q. Did you drink, too?

A. Yes, sir.

Q. Do you get drunk, too?

A. No, sir.

Q. You drink with him?

A. Once in a while; go in and get a sandwich and a glass of beer.

1150 MARTIN SHEA, sworn for the defendant.

Direct-examination by Mr. Sickmon:

Q. Where do you live?

A. Foot of Michigan street, on the island.

Q. What is your business?

A. Laboring.

1151 Q. Do you know the defendant Kemmler?

A. Yes, sir.

Q. How long have you known him?

A. Little over a year.

Q. Where did you get acquainted with him?

A. Fishing on the ice.

Q. Have you seen him intoxicated?

A. Yes. sir.

Q. Where?

A. The first time I seen him was on the island. 1152

Q. When you were fishing?

A. Yes, sir.

Q. Whereabouts on the island?

A. Foot of Michigan street.

Q. In any place?

A. No, sir; right outside.

Q. What time of year was this?

A. When we quit fishing last spring.

Q. This present spring was it, or a year ago?

A. A year ago this spring. 1153

Q. That would be the spring of 1888?

A. Yes, sir.

Q. What was he doing?

A. He had a horse and wagon and peddling.

Q. Was he on the wagon?

A. Yes, sir; he was on the wagon when he got there, but he got off when he got there.

Q. Did you see him walk?

A. Yes, sir. 1154

Q. How did he walk?

A. Staggering.

Q. When else did you see him intoxicated?

A. Saw him in his own house one time.

Q. Was he living on South Division street then?

A. No, sir; he lived on Elk street.

Q. When was that?

A. Last Spring, a year ago.

Q. How many times in all did you see him intoxicated?

A. About five or six times. 1155

Q. Where else besides the island and his house did you see him intoxicated?

A. On the Elk street market.

Q. How many times did you see him intoxicated on the market?

A. Well, I couldn't mention how many times.

Q. More than once?

1156 A. Yes, sir.

Q. Give us your best judgment as to the number of times?

A. About four or five times; as near as I can get at it.

Q. When was the last time that you saw him drunk; how long ago?

A. Well, it was early this Spring.

Q. Was that the last time that you saw him?

A. Yes, sir.

1157 Q. Was that the last time that you saw him at all until you saw him here?

A. Until I saw him here; yes, sir.

Q. So that the last time you ever saw him he was intoxicated until you saw him here in Court?

A. Yes, sir.

Q. Did you ever see him sober?

A. Yes, sir.

1158 *Cross examination* by Mr. Quinby:

Q. How long before this killing was it you saw him when you say he was intoxicated?

A. Well, I couldn't rightly say how long before.

Q. About how long before?

A. Probably a month or six weeks.

Q. Month or six weeks before this killing?

A. Yes, sir.

1159 JACOB BURKHARDT, sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. What is your business, Mr. Burkhardt:

A. My business is a barber.

Q. Where is your place of business?

A. Corner of Myrtle avenue and Jefferson street.

Q. How long have you been engaged in business there? 1160

A. I have been working there since the 21st day of May last year.

Q. You know the defendant?

A. Well, I have seen him.

Q. How long have you known him?

A. I have known him for about ten months now. From the time I know him I don't see him until the 8th day of December; I don't know him from that date on; I never seen him since from that day on. 1161

Q. Never seen him since the—

A. 8th day of December.

Q. Last?

A. Yes, sir.

Q. How long before that time had you known him?

A. I had known him for about four months then; four or five months.

Q. How often did you see him?

A. Well, he came there, for a while he came there once every week and got shaved; sometimes he did not come for about two weeks. 1162

Q. How often would you see him?

A. I never seen him between times.

Q. Have you seen him intoxicated?

A. No, sir; not that I know of.

Mr. Sickmon: That is all.—Have you a brother by the name of John Burkhardt? 1163

A. No, sir; I have a brother by the name of John Burkhardt, but he is out in the old country.

Cross-examination by Mr. Quinby:

Q. How many times have you shaved him?

A. Well, that is what I said; from the time I

1164 know him about four or five months, once a week and sometimes twice a week.

Q. He would come in and sit down there?

A. No, sir; when he had his work done, he always paid me and went off again.

Q. Sometimes he would come in and sit down, wouldn't he, waiting for his shave?

A. Yes, of course; if anybody was ahead of him he had to sit down.

Q. You never saw him intoxicated during that
1165 time?

A. No, sir.

Q. Talked with him when you were shaving him?

A. Yes, once in a while.

Q. Anything unusual with him?

A. No, sir.

Q. Talk same as anybody else?

A. Yes, sir.

Q. And acted same as anybody else?

A. Yes, sir; while he was in my chair.

1166 Q. Did you ever see him come into the saloon and sit the way he is sitting there now?

A. No, sir; I never seen him in a saloon.

Q. I mean in the barber shop?

A. No, sir.

Re-direct examination by Mr. Sickmon:

1167 Q. How many times did you ever see him?

The Court: You have been all over that.

Mr. Sickmon: It is a mistake in calling him; that is all.

Mr. Hatch: This man has not been subpœnaed here by us at all.

Mr. Sickmon: It is a mistake in subpœnaing him; it is a surprise to us. 1168

Re-direct examination by Mr. Sickmon:

Q. How many times have you ever seen the defendant?

A. I could not say how many times I seen him, but I can say from that time on I seen him once.

Q. How many times have you seen him at any time in your barber shop? 1169

The Court: He has said that four months he shaved him every week or every other week.

A. I shaved him every week once and sometimes did not come for a while in two weeks; did not get shaved, that is all I can say; I couldn't say how many times he came there.

Q. How many people were employed in your barber shop? 1170

A. Well, for a time there was employed three men. That means myself and a boy and the boss.

Q. Did you always shave this man?

A. Yes, sir; generally shaved him.

PATRICK QUINN, sworn for the defendant.

Direct examination by Mr. Sickmon: 1171

Q. What is your business?

A. Captain of Police.

Q. Of what station?

A. Number One.

Q. How long have you been Captain of that station?

A. Since the 30th of last June.

1172 Q. Do you know the defendant, Kemmler?

A. Yes, sir.

Q. Did you ever see him before the time he was brought to the station in March last?

A. Yes, sir.

Q. What time was he brought to your station; on what day?

A. I do not remember.

Q. Do you remember the month?

1173 A. No, sir.

Q Do you recollect the time that Matilda Ziegler was killed?

A. I read about it; yes, sir.

Q. In relation to that time when was it that he was brought to your station?

A. I think three or four days after.

Q. That is your recollection?

A. Yes, sir.

Q. Was he not brought there the same day?

A. No, sir; he was not.

1174 Q. You are positive of that?

A. Yes, sir.

Q. Were you there when he came?

A. No, sir; I was not.

Q. How long did you learn he had been there when you came to the station?

A. When I came back from supper one evening.

Q. Was not that the evening of the 29th day of March?

1175 A. I don't know.

Q. What is that?

A. I don't remember what day of the month it was.

Q. Was it not the evening of the murder?

A. No, sir.

Q. Did you go in and see him after you came to the station?

A. No, sir.

Q. Did you see him at all that night?

A. No, sir. 1176

Q. When did you first see him?

A. Saw him the next day.

Q. What time?

A. Between ten and eleven o'clock.

Q. He was placed in a cell at Station One when he arrived?

A. I don't know where he was taken when he was taken there. I believe he was taken to headquarters.

Q. Where did you see him?

A. I saw him in the cell. 1177

Q. Who had charge of him?

A. We kept different men detailed there to watch him.

Q. Who were the men?

A. Well, I can't recollect all the men that we had in there.

Q. Can you recollect one of the men that had charge of him?

A. No, sir.

Q. How many different men did you have for that purpose? 1178

A. We take a man right out of the ranks.

Q. Was it one of the policemen from the ranks, detailed to this duty?

A. On every night; every tour of duty; yes, sir.

Q. Have you any memorandum to show who had charge of him that night?

A. We have on our books; yes, sir.

Q. Without referring to those books can you tell? 1179

A. No, sir.

Q. Is that your hand writing? (Counsel shows paper to witness.)

A. Yes, sir.

Q. Is that?

A. I can't tell till I see it all. (Counsel exhibits whole of paper to witness.)

A. Yes, sir.

1180 Q. Do you know when that was placed on there?

A. I don't know the exact day of the month.

Q. Does looking at the head of it give you any information?

A. No, sir.

Q. Whose writing is that?

A. That is one of the doormen's.

Q. Was this bill presented to you?

A. Yes, sir.

Q. And you put on the letters "O. K.," then signed
1181 you name?

A. Yes, sir.

Q. Just look at that bill?

A. I see it.

Q. Were those goods brought to the police station?

A. I do not know.

Q. Did you examine it when it was presented to you?

A. Yes, sir.

1182 Q. Did you know at that time what was done with the goods?

A. No, sir.

Q. Why did you mark it O. K. if you did not know?

A. Because I was told that he got it.

Q. That who got it?

A. This gentleman over there. (Indicating the defendant.)

Q. Just read that bill, will you, please?

1183 A. "Received of Captain Quinn one dollar and fifty cents, in full for whiskey and cigars, furnished William Hort at Number One Station.

"GEORGE KIEFER."

Q. Who was the William Hort mentioned there?

A. It is that gentleman (indicating defendant).

Q. Kemmler?

A. Yes, sir.

Q. That was the name by which he went at the police station?

A. I believe so. 1184

Q. By whom were you informed that these goods had been had?

A. I think the doorman told me.

Q. Which doorman?

A. I believe Collins was one of them.

Q. There are two Collins that are doormen, are there not?

A. Richard; yes, sir.

Q. Richard Collins?

A. Yes, sir. 1185

Q. When did you examine this bill? (Counsel presents bill to witness.)

A. Same time.

Q. And you marked that O. K.?

A. Yes, sir.

Q. Will you please read that bill?

A. "Received of Captain Quinn two dollars and fifty cents, in full for whiskey and cigars furnished William Hort, at Number One station." 1186

Q. Who gave you that bill?

A. The doorman gave it to me, also.

Q. Richard Collins?

A. Yes, sir.

Q. Did you see any of the goods mentioned in that bill?

A. I give this man one drink of whiskey myself.

Q. When was that?

A. That was the next day after he was locked up there.

Q. Did you give instructions to the persons in charge of him or to the doormen as to giving him liquor? 1187

A. No, sir.

Q. What time in the day did you give him this whiskey?

A. Between ten and eleven o'clock.

Q. Did you present these bills to Mr. Hatch?

1188 A. Me?

Q. Yes?

A. No, sir.

Q. Did you send them to Mr. Hatch?

A. Yes, sir.

Q. Whom did you send?

A. Sergeant Lynch.

(Counsel shows check to witness.)

1189 Q. Did you ever see that check?

A. No, sir.

Q. Did Mr. Lynch bring you the money?

A. He gave me money.

Q. This money?

A. I do not know anything about that.

Q. How much money did he give you; the amount of these two bills?

A. Yes, he gave me more than the amount of these two bills. 1190

Q. What is that?

A. He gave me more than that?

Q. Was there any other bill?

A. Yes, sir.

Q. Whatever these three bills amounted to, you received the money for?

A. Yes, sir.

Q. And Mr. Quinn informed you that he had obtained it from Mr. Hort's counsel; defendant's counsel?

1191 A. Mr. who?

Q. Did Mr. Lynch inform you that he received this money from the defendant's attorney?

A. Said he got it from Mr. Hatch.

Q. When was that money received?

A. I don't know; I did not mark down the day of the month.

Q. Little louder?

A. I say I did not mark the day of the month.

Q. Was it the same day that you sent Mr. Lynch after this money? 1192

A. Yes, sir.

Q. Who got this liquor?

A. I don't know.

Q. Who used the liquor?

A. I don't know.

Q. You have not got any of it left over?

A. No, sir.

Q. You did not drink any of it?

A. No, sir. 1193

Q. You don't know of the officers drinking any of it?

A. No, sir.

Q. And it is gone?

A. I guess it is gone.

Q. And it was procured for the defendant?

A. So I understood.

Q. You understand that he drank it, do you not?

A. I do not know.

Q. How long was Kemmler kept at the station? 1194

A. I think he was kept there four or five days.

Q. Did you obtain any other liquor for him besides that charged for in these two bills?

A. Not that I know of.

Q. Whom do you send for this liquor?

A. I do not know.

Q. Did you not make any inquiries?

A. No, sir.

Q. Who paid for it? 1195

A. Mr. Hatch, I suppose.

Q. Who paid for it at the police station?

A. Nobody.

Q. How came these bills to be receipted on the 4th day of April?

A. They were not receipted on the 4th day of April.

Q. That is the time they bear date; when were they receipted?

1196 A. About the 9th.

Q. Where were they receipted?

A. In the station-house.

Q. Who paid the money for them?

A. I do not know.

Q. I want to know who paid these liquor bills?

A. Mr. Hatch did not pay me; I have not said Mr. Hatch paid me.

Q. I want to know who paid these men whose receipts he holds for the money?

1197 A. I can't give you what I don't know.

Q. Then you say you do not know who paid it?

A. Yes, sir; I do know who paid some of them.

Q. Did you pay any of them?

A. Yes, sir; I did.

Q. The two that I have shown you?

A. I paid Mr. Davy and also Mr. Kiefer.

Q. Those are the two that I showed you; did you have a conversation with Mr. Hatch after Kemmler was locked up in the station?

1198 A. I said there was some bills to be paid.

Q. Did you tell Mr. Hatch that you had to give Kemmler this whiskey to keep him alive?

Mr. Quinby: To that I object; well, go on and ask it.

The Court: You may answer it.

1199 A. No, sir.

Q. Did you tell him that the defendant was very shaky and had been drinking hard and he had to have this whiskey?

A. No, sir.

Q. Did you tell him that the whiskey that you got him was necessary for him?

A. I couldn't tell him that because I didn't get none.

Q. I did not ask you what you did not tell him; I asked you if you did not tell him that? 1200

A. Tell him what?

Q. Did you tell him that the defendant was very shaky and nervous?

A. I answered that question once; no.

Q. Did you tell him that this whiskey was necessary for the defendant?

A. No, sir.

Cross-examination by Mr. Quinby: 1201

Q. Is there anything more about this than that he wanted some whiskey and you got it for him?

A. I believe the doorman told me that the Doctor—

Objected to by defendant's counsel.

Q. Well, how much of this was whiskey and how much cigars; I see the bills are marked whiskey and cigars. Do you know anything about that? 1202

A. I do not.

Q. He smoked there in his cell, did he?

A. Yes, sir.

Re-direct examination by Mr. Sickmon:

Q. Is it customary to give prisoners locked up in your station, whiskey?

A. No, sir. 1203

Richard Collins, sworn for the defendant.

Direct-examination, by Mr. Sickmon:

Q. You are a doorman at Station One, Mr. Collins?

A. Yes, sir.

1204 Q. And were March last?

A. Yes, sir.

Q. Do you know the defendant, Kemmler?

A. Yes, I know him.

Q. He was confined for a time in police station Number One?

A. Yes, sir.

Q. Do you recollect when he was brought there?

A. Yes, sir.

1205 Q. What day of the month?

A. I don't know the date or the day, but I know it was in the night time; about, I guess, the first time I saw him was about between nine and ten o'clock.

Q. You recollect the day of the killing?

A. I do; yes, sir.

Q. Was it the evening of that day that he was brought to the station?

A. I think it was.

Q. Were you on duty at the time he was brought there? 1206

A. Yes, sir.

Q. And your hours are from——

A. Well, they were from four to twelve that week; we change.

Q. They change from week to week?

A. Yes, sir.

Q. From four o'clock in the afternoon until——

A. Twelve at night.

1207 Q. By whom was he brought to station Number One?

A. Well, when I was home he was in charge of Lieutenant Barry; Number Two.

Q. Did Barry come over with him?

A. I don't know; he came down stairs with him from the Superintendent's office, I believe.

Q. Was there some liquor procured for Kemmler that night?

A. Yes, sir. 1208

Q. Who got it?

A. I got it.

Q. Where did you obtain this liquor?

A. To Alderman Davy's, on the corner.

Q. John Davy?

A. Yes, sir.

Q. How much did you get?

A. I got a pop bottle full of whisky and a half dozen good cigars for him.

Q. Did you get any other liquor for him? 1209

A. That is all that I got.

Q. What was done with this liquor that you got?

A. It was given to Kemmler.

Q. Was the bottle passed in to him?

A. No, sir; given to him gradually.

Q. The whole of it?

A. No, well, we gave him a drink along as we thought he needed it, or when he would ask for it, once in a while. 1210

Q. And there was other liquor sent for, was there not?

Q. There was other liquor got, too.

Q. You did not get that?

A. No, sir; I told the doorman that relieved me; on the orders that I got.

Q. From whom did you receive your orders?

A. From O'Brian.

Q. Who is he?

A. He is the Superintendent's operator; operator at headquarters. 1211

Q. You left orders to the doorman who succeeded you to procure him some more liquor?

A. Well, he hadn't drank what I got him; I told him to give him that as I was ordered to give it to him.

Q. And then did you give him liquor?

A. Well, I guess I gave him two drinks before I left there.

1212 Q. Between nine o'clock and twelve o'clock?

A. Well, I guess it was after ten when I got the liquor; possibly three.

Q. It was after ten when you got it, and before twelve you think you gave him the drinks?

A. Might have given him three.

Q. In what did you give it to him?

A. In a tin cup.

Q. About how much did you give him at a time?

A. Oh, an ordinary drink.

1213 Q. Why did you give it to him?

A. I was told to.

Q. Had Mr. O'Brian made an examination of him?

A. Why, I suppose so; he is the Superintendent's operator, and that is where Kemmler came from when he came to Number One. He came to the Superintendent's office up stairs.

Q. And when he came down from the superintendent's office he brought those instructions to you?

1214 A. Yes, sir.

(Defendant here rested with the exception of calling a certain expert witness.)

The Court: I will allow you to call the witness in the morning and I will allow you to call Burkhardt if he comes before the proofs are closed.

Mrs. Mary Reid, recalled for the people.

1215

Direct-examination by Mr. Quinby:

Q. Mrs. Reid, you were sworn here at the beginning of the trial?

A. Yes, sir.

Q. You had a window or windows looking out to this barn; there were windows from your place where you could see out?

A. No, not to the barn.

Q. Not on the side of the barn? 1216

A. No, sir.

Q. How often would you see Kemmler while he was living there?

A. I see him nearly every morning.

Q. How about when he came home at night?

A. Nearly every evening.

Q. How many times, you may state to the jury, did you see him intoxicated?

A. Only twice that I can remember of.

Q. During the time that he lived there? 1217

A. Yes, sir; that I saw him.

Q. He lived there, you have stated, from——

A. The 17th of October.

Q. From the 17th of October up to the day of the killing?

A. Yes, sir.

Cross-examination by Mr. Sickmon: 1218

A. Now, Mrs. Reid, you did not see him every evening when he came home, did you?

A. About every evening.

Q. You did not take any particular notice of him, did you?

A. No, sir.

Q. Sometimes he came home after dark, did he not?

A. Sometimes.

Q. Quite frequently? 1219

A. No; more times they come home about five; six o'clock, I should think.

Q. Had he not come home after dark as often as he did before dark?

A. I think not.

Q. When were the times that you saw him intoxicated?

A. I could not say.

1220 Q. Did you see him the night before the killing?

A. I did.

Q. He was intoxicated that night, was he not?

A. Yes, sir.

Q. When last, before that, did you see him come home; when was the last time before that that you saw him come home at all, do you remember?

A. I do not really remember what night.

Q. How many times did you ever see him come home?

1221 A. I could not say.

Q. Did you ever see him a half a dozen times in all to notice him when he came home?

A. I think I did.

Q. In what room were you usually, about six o'clock?

A. My kitchen, pantry, after water; out in the wood-shed after coal.

Q. There was nothing to particularly call your at-
1222 tention to Kemmler, was there?

A. No, sir.

Q. You had no further interest in him than that he was a tenant in your house?

A. No, sir.

Q. After he came home evenings, he went out again frequently, did he not?

A. Sometimes.

Q. Sometimes he would not come home at all at night?

1223 A. I do not know.

Q. Some nights you would not see him come home?

A. No, sir; I would not see him.

Q. Would you see him as often as once a week come home, to notice him?

A. After he came home from his work?

Q. No, to see him come home; to see him drive into his yard?

A. Yes, sir.

Q. He came in a covered wagon, did he not? 1224

A. Generally.

Q. That is what he drove, was it not?

A. Yes, sir.

Q. And the cover extended clear over the box?

A. I think so.

Q. You could not see as it drove past your window, who was in the wagon, could you?

A. No, sir.

Q. Then you would not get your knowledge of when he came home by seeing him drive by the window? 1225

A. I see him generally unhitch his horse and come in after water for his horse.

Q. In where?

A. In my wood-shed.

Q. Where is your wood-shed located?

A. Well, just back of my kitchen.

Q. Right opposite of your kitchen?

A. Yes, sir. 1226

Q. Your door was left open, was it?

A. Yes, sir.

Q. Occasionally you would see him come in there?

A. Yes, sir.

Q. He did not usually water the horse, did he?

A. Well, he done something; he came in after a pail of water.

Q. Did not this witness De Bella take care of the horses?

A. I saw Mr. Hort oftener than I did De Bella come after water. 1227

Q. But you do not mean to say that you saw him every night?

A. I do not say that I saw him every—

Q. Or every other night, do you?

A. I didn't say that I did.

Q. Do you mean to swear that you saw him oftener than once a week?

1228 A. Yes, sir.

Q. In the morning?

A. Yes, sir.

Q. Did you see him oftener than once a week at night?

A. Yes, sir.

Q. Where?

A. Why around the place; either in the woodshed, or outside getting ready to go away or coming home.

1229 Q. Getting ready to go away at night? Did he go away evenings?

A. I presume he did, sometime.

Q. Did you see him go away?

A. Yes, sir.

Q. Quite frequently?

A. Why, yes.

Q. And you would not see him when he came home?

A. No, sir.

1230 Q. After going away in the evening, you do not know whether he was intoxicated, when he came home, or not?

A. No, sir.

Re-direct examination by Mr. Quinby:

Q. Now, one question more, I wish to ask you, Mrs. Reid; you saw him around there in the morning, you have stated? 1231

A. Yes, sir.

Q. Doing his work?

A. Yes, sir.

Q. And when he would come home to get water and tend to his business, did you ever notice, except on these two occasions, when you spoke about his being intoxicated, did you ever notice anything out of the ordinary with him?

A. No, sir. 1232

Q. Same as any other person?

A. Yes, sir.

WILLIAM D. REILLY, sworn for the people:

Direct-examination by Mr. Quinby:

Q. You live in Buffalo?

A. I do. 1233

Q. What is your business?

A. I am in the fruit and commission business on the Elk street market.

Q. How long have you been in the fruit commission business?

A. About nine years.

Q. Do you know the defendant, Kemmler?

A. I do.

Q. How long have you known him?

A. I have known him perhaps little more than a year. 1234

Q. Have seen him there at the market?

A. I have.

Q. Has he traded with you?

A. He has at different times; yes.

Q. Purchased fruit or something of you?

A. Fruit, yes; always fruit.

Q. Describe, if you will, to the jury about how many times he has dealt with you, or has he dealt right along? 1235

A. Well, he has dealt at different times; I don't know; he has often dealt with my man and perhaps he has bought a great many goods at the place that I don't know anything about.

Q. What is your man's name?

A. His name is Shintz.

Q. What is his first name?

1236 A. John.

Q. Is he working for you now?

A. Yes, sir.

Q. How many times have you talked with Kemmler yourself?

A. I have talked with him a number of times; perhaps a dozen or twenty, and perhaps oftener than that.

Q. Had business transactions with him yourself?

1237 A. Yes, sir.

Q. Seen him frequently around the market when he did not trade with you?

A. Oh, yes; I have seen him off and on around the market during all this period that I speak of.

Q. Up to what time; what was the last purchase he made of you?

A. I could not tell that.

Q. About when was it?

A. Well, I am sure I couldn't say; it might have been six months ago and it might have been two months ago. 1238

Q. You may state to the jury what kind of a business man he was in the purchase of——

A. Well, I always looked upon him as a very close, hard buyer; I couldn't make any money out of him.

Q. How about his intoxication?

A. Well, I have seen him intoxicated frequently.

Q. How many times, do you think?

1239 A. Well, I could not say; I have often seen him intoxicated though.

Q. About how many times?

A. Well, perhaps a dozen times; half a dozen; I have never taken any particular pains to keep track of it; I don't know.

Q. He was so he could walk around there, was he not?

A. Oh, yes; he could walk around; navigate; still you could see if he was intoxicated very plainly.

Q. Did he ever come in your place and sit down? 1240

A. No.

Q. Talk with you?

A. No.

Q. Did you ever see him sitting around any place?

A. I do not know that I have; no. I do not ever remember of having seen him sitting around any place.

Q. Did he pay cash or run an account there?

A. He usually paid cash; in fact always paid cash.

Q. Who did the figuring as to what he was to pay 1241 generally?

A. Well, he always did his cash business with my bookkeeper, and I guess there has been two or three times when he left a small balance, but always paid it promptly.

Q. Outside of this intoxication that has been spoken of, did you notice anything out of the way in any way?

A. No.

1242

Cross-examination by Mr. Sickmon:

Q. Where did you first get acquainted with the defendant?

A. I remember the first time that I ever saw him was on the market about a year ago; perhaps a little more than a year ago.

Q. Did your dealings with him extend during all 1243 the time that you have known him; did they commence shortly after you met him on the market?

A. Yes, sir.

Q. The dealings which you had were in your place?

A. Yes, sir; in my store.

Q. Has he been in there intoxicated?

A. Well, I do not know that I have ever seen him

1244 in my place intoxicated; I have seen him around the market though at different times intoxicated.

Q. So that he staggered?

A. Well, yes; he staggered; you could see that he was drunk.

Q. Was his face flushed?

A. Well, yes.

Q. Somewhat bloated?

A. I never noticed that it was bloated particularly; no.

1245 Q. He had the evidence of being a hard drinker, did he not, upon his countenance?

A. He always impressed me as being a hard drinker; yes, sir.

MELVIN CARPENTER, sworn for the people.

Direct examination by Mr. Quinby:

1246

Q. You live in Buffalo?

A. Yes, sir.

Q. What is your business?

A. Produce commission on Elk street market.

Q. How long have you been in the produce commission business?

A. About seven years.

Q. Do you know Kemmler?

A. Yes, sir.

1247 Q. How long have you known him?

A. Well, somewheres about nine months, I should think.

Q. Has he traded with you?

A. Yes, sir.

Q. How long a time?

A. Well, perhaps for during the whole time off and on.

Q. During those nine months?

A. I should judge as long as that. 1248

Q. Up to what time did he trade with you?

A. The last dealings he had with me was about two or three days previous to his arrest.

Q. Did you see him that day?

A. Yes, sir.

Q. Did you trade with him?

A. Yes, sir.

Q. What was the transaction; just tell us?

A. Well, we sold him some apples.

Q. How many apples? 1249

A. Well, I think it was about twenty barrels.

Q. Did you do the talking with him?

A. Yes, sir; I done some and my men done some.

Q. He made the purchase, did he?

A. He was trying to buy of my men and they could not agree and he wanted to buy them cheaper and came to me, and I told them to let him have them.

Q. How many business transactions have you had with him? 1250

A. Well, I could not say.

Q. Do you suppose?

A. Quite a number.

Q. You may state to the jury what kind of a business man he was?

A. Well, I considered him a pretty close buyer.

Q. Did he pay cash or have an account?

A. Paid cash; he never got any account with me.

Q. About his drinking; what did you say about that? 1251

A. Well, I discovered sometimes that he was pretty full.

Q. How many times do you think?

A. Well, two or three times in particular that I noticed that he was pretty well over the bay.

Q. Been drinking too much? Outside of his drinking, did you ever see anything out of the ordinary with him?

1252 A. I did not; I never paid any attention to him only when he came in there to buy goods.

Q. Well, you never saw; you never detected anything out of the ordinary?

A. No, sir.

Q. Except sometimes he was under the influence of liquor?

A. That is all.

1253 *Cross-examination* by Mr. Sickmon:

Q. Where was he when he was under the influence of liquor that you saw him?

A. He came into my office.

Q. Upon each of these occasions that you saw him under the influence of liquor, he came into your office?

A. Yes, sir.

Q. You knew that he——

A. No; once in particular and another time I
1254 noticed him on the walk trying to buy something of my men; I noticed that he was pretty full.

Q. You knew that he frequented the saloons about the market?

A. No, sir.

Q. You did not know that?

A. I never saw him to notice him away from my place.

Q. The only information that you have of him is
1255 what took place in your place?

A. That is all.

Q. How many times did he buy of you in your store?

A. I could not say; quite a number of times during the winter.

Q. Aside of these two times that you say he was intoxicated, were there other times when he had been drinking so that you could notice it on him when he came to do business with you?

A. Well, I could not say whether he had or not; I did not pay much attention. 1256

Q. His face was flushed, was it not, usually?

A. Well, I should think it was.

Q. And his eyes were blood-shot?

A. I could not say as for that.

Q. You have seen him when they were?

A. I could not say that I could.

Q. He had the appearance of being a hard drinking man, did he not?

A. Well, at these times I know that he was—— 1257

Q. He had the appearance of a person who drank a great deal of liquor?

A. I judge that he was a man that drank considerable.

Q. And had that reputation about the market?

Objected to by the District Attorney.

Objection sustained. 1258

CHARLES RICHARDSON, sworn for the people.

Direct examination by Mr. Quinby:

Q. You live in the city of Buffalo, Mr. Richardson?

A. Yes, sir.

Q. What is your business?

A. Wholesale produce. 1259

Q. Where is your place of business?

A. 58 and 60 West Market street.

Q. Do you know the defendant, Kemmler?

A. I do.

Q. How long have you known him?

A. Well, about one year.

Q. Has he traded with you?

A. He has traded at the store, but not with myself direct; he has traded with my salesman.

1260 Q. For how long?

A. Well, more or less for one year, I should think

Q. Up to what time?

A. Sometime during the early spring; I couldn't tell.

Q. How long before this killing?

A. I couldn't say as to how long. Three or four weeks probably.

Q. Did you ever deal with him yourself?

A. Not direct.

1261 Q. Did you ever make any sales to him?

A. Talked with him some; that is all.

Q. About business?

A. Yes.

Q. About prices?

A. Yes.

Q. About contemplated purchases by him?

A. Yes, sir; but not sold, to him direct myself; I don't recollect ever making a sale to him?

1262 Q. You may state, in this talk, whether or not you discovered anything out of the ordinary?

A. Always thought him a peculiar kind of a drinking man. That is all.

Q. About his business transactions. How were they?

Mr. Sickmon: I object. This witness swears he had no dealings with him direct; never made any sales to him.

1263 The Court: All he says is he had talked with him about business, prices and contemplated purchases. He must confine his question to what took place between them.

Q. What is the name of your man that made these sales to him?

A. Simon Newman, for one.

Q. Simon Newman? 1264

A. Mostly.

Q. Is he working for you now?

A. Yes, sir.

Q. Whom else? Mostly, you say?

A. I have two or three men there that made sales to him, but this one in particular.

Q. Simon Newman would know more about it than any one?

A. This one in particular.

1265

WILLIAM C. TOWNSEND, sworn for the people.

Direct examination by Mr. Quinby:

Q. You live in Buffalo?

A. Yes, sir.

Q. What is your business? 1266

A. Produce commission business.

Q. Where is your place of business?

A. 42 West Market.

Q. You know the defendant, Kemmler?

A. Yes, sir.

Q. How long have you known him?

A. About a year.

Q. Has he traded with you?

A. Yes, sir.

Q. During what time? 1267

A. During the year.

Q. Up to what time?

A. Sometime in Easter I think was the last trade I made with him.

Q. How long before the killing?

A. Well, it was in Easter sometime.

Q. Shortly before the killing?

A. Well I should think so.

1268 Q. The killing was on the 29th day of March?

A. Well, this was—it would be two or three weeks before that, I should think.

Q. Have you had business transactions with him yourself?

A. Yes, sir.

Q. About how many?

A. Hard to tell; it was all cash transactions.

Q. Good many?

A. Probably twelve, fifteen.

1269 Q. Purchases of goods by him?

A. He buys goods from me.

Q. I say in the purchase of goods by him?

A. Yes, sir.

Q. What kind of a business man was he in regard to purchases?

A. Straightforward business man; close buyer.

Q. Did you see him intoxicated at times; some?

A. I never noticed anything unusual.

1270 Q. You never noticed him intoxicated?

A. Never noticed him; no, sir.

Q. What I want to know is, in all this course of dealing that you had with Kemmler, whether you noticed anything out of the ordinary with him?

A. No, sir.

Q. Different from any other man?

A. No, sir.

Q. Considered him a sharp, close business man?

A. Yes, sir.

1271

Cross-examination by Mr. Sickmon:

Q. When were your sales made to him; what time of day?

A. Oh, generally in the forenoon.

Q. You never saw him in the afternoon?

A. Yes, sir.

Q. Not often, did you?

A. No, sir. 1272

Q. Usually took his load and went away?

A. Yes. sir.

Q. You do not know what he did after leaving there?

A. Took his load away to sell. I don't know what he did do.

Q. You do not know what he did, or whether he drank, or not, after he left there?

A. No, sir.

Q. Do you know Mr. Spang? 1273

A. I don't know him by name.

Q. Do you know a tall man who worked for the defendant?

A. Yes, sir.

Q. Had a wagon?

A. Yes, sir.

Q. He made a number of these purchases, did he not, of you, for which the defendant paid?

A. No, sir.

Q. He bought goods of you? 1274

A. No, sir; not for him.

Q. Spang never bought any of you?

A. Well, I can't say whether he ever bought any goods of me or not.

Q. What sales did you make to Kemmler?

A. The last sale was eggs.

Q. You have a certain price for them, do you not?

A. Yes, sir.

Q. And you do not sell them any lower? 1275

A. Yes, sir.

Q. You do sell them lower?

A. We have a price and we get as near that price as we can.

Q When a person comes to purchase, you state the price?

A. Yes, sir.

Q. And sometimes Kemmler would offer you less than that?

1276 A. Yes, sir.

Q. That is what you mean by his being a sharp business man?

A. Buying goods as close as he could; beating us down on prices.

Q. Usually get your price and then offer you something lower?

A. Yes, that is—

Q. That is all there was about his business transactions, was there not, that impressed you as being a 1277 shrewd business man?

A. Well, talk about the goods; that was all.

Q. Did you ever see him upon any other occasion except when he came to buy goods of you?

A. Seen him in the market.

Q. You do not know how he managed his other business?

A. No, sir.

Q. And your entire experience with him is derived from what he did in your store in buying goods 1278 twelve or fifteen minutes?

A. Yes, sir.

Q. You have seen him when he had been drinking, have you not?

A. Never saw him drinking; never was in saloons with him; never saw him drinking.

Q. You do not frequent the saloons yourself?

A. Not very much.

Q. You would not be apt to see him there?

1279 A. No, sir.

Q. And you attend to your business in your store?

A. Yes, sir.

Q. He has been into your place when he had been drinking, had he not?

A. I don't know.

Q. Have you noticed liquor upon him when you have been doing business with him, in his breath?

A. I noticed his breath would smell of liquor; that is the only thing.

Q. Upon every occasion when you transacted business with him? 1280

A. I could not say whether I did or not.

Q. You noticed it upon a number of occasions?

A. Yes, sir.

Q. He had the appearance of being a hard drinker, did he not; his countenance showed it?

A. I never took any notice about that—his appearance.

Q. You never noticed that he did, or not?

A. Never struck me as being a hard drinker or not a drinker. 1281

Q. You never noticed either way to form any opinion in relation to it?

A. No; either way.

CHARLES O. ROGERS, sworn for the people.

Direct-examination by Mr. Quinby: 1282

Q. You live in Buffalo?

A. Yes, sir.

Q. What is your business?

A. Fruits.

Q. Where is your place of business?

A. 102 West Market street.

Q. Do you know Kemmler, the defendant?

A. Yes, sir. 1283

Q. Has he ever traded with you?

A. Yes, sir.

Q. How long have you known him?

A. About a year.

Q. Through what period of time has he traded with you?

A. Well, the first I can remember was last summer; during the peach season, was the first.

Q. And has that continued along down?

1284 A. Well, at odd times; yes, sir.

Q. When was the last purchase he made of you?

A. I think the day before he killed his wife; either the day before or the day preceding that.

Q. This time, the day before this homicide, what business transaction did he have with you?

A. I sold him a lot of apples; seventeen barrels.

Q. What time of day was it?

A. This was in the morning; about, I should think, somewhere between eight and nine or ten o'clock.

1285 Q. Tell the jury generally what kind of a business man he was?

A. Well, he would come along and buy lots of fruits; that is, clean up a lot, and would make good, fair offers for it; knew what he was doing.

Mr. Sickmon: I move to strike that out.

The Court: Well, if he means in the sense of an opinion—if he means by that that he understood the
1286 quality of this kind of goods, why that may be competent.

A. Yes, sir; he did.

Mr. Sickmon: Give us an exception; I move to strike it out.

The Court: Well, I will strike out the words "He knew," and he may state the other thing if it suits
1287 any better; state that he understood the quality of the goods.

Q. What else?

A. This day that he bought the apples——

Q. Just a moment; you may state to the jury whether or not he was a close buyer?

A. Yes, sir; he was; never made no foolish offers for stuff; this lot of apples—well, it was probably a lot of—there was seventeen barrels of it; took at one crack, 1288 all there was left of it; I asked him a dollar a barrel for the fruit; made me an offer of ninety cents; I sold him the fruit; party of three—four of them together, I believe.

Q. What about his drinking; tell us about it?

A. Well, his face was always red and flushed, and at odd times I have seen him go by the store when he was under the influence of liquor.

Q. Outside of his drinking, did you notice anything in his conduct out of the ordinary, more than 1289 any other man?

A. No, sir.

Q. His talks upon business matters there and your transactions, were they rational or irrational?

A. They were square and rational, sir.

Q. Same as any other business man?

A. Yes, sir.

Cross-examination by Mr. Sickmon: 1290

Q. How many transactions did you have with him, Mr. Rogers?

A. Well, I sold him peaches last summer; I couldn't say exactly how many times, probably three, four may be ten different times; and this spring, sold him the apples; that was the last transaction.

Q. You have had with him four different transactions?

A. Well, I should say something like that; I 1291 couldn't say exactly.

Q. You would not say that there were any more than that?

A. Well, that is a hard thing to remember from last summer; we have so many.

Q. That is all that you now recollect?

A. Yes, sir.

Q. Three of those transactions were eight or nine months ago?

1292 A. Yes; about that time, I should think.

Q. And only one transaction this spring since then?

A. Yes, sir.

Q. Now, at the time that you sold him these apples, you noticed the same condition as to his face being flushed that you had noticed before, did you?

A. Well, I would not say it was flushed at that time, but it was red, as his appearance always has been.

Q. Looked like a person who used intoxicating liquors to excess?

1293 A. Well, I should not—I don't know as he used them to excess, as it may make his face red—whether that would come, or being out in the wind all the time, or the air.

Q. Where was that trade made?

A. Of the apples?

Q. Yes?

A. It was made on the second floor of our store.

Q. He went up to look at the apples?

1294 A. Yes, sir.

Q. And you fixed a price on them?

A. Yes, sir.

Q. And all that he did was to offer you ten cents a barrel less than you had offered them to him for?

A. Yes, sir.

Q. That is all that there was of this transaction?

A. Of that one transaction; yes, sir. Paid the cash for them at the time.

Q. Paid the cash and took his apples?

1295 A. Yes, sir.

Q. Is that true of the other transactions?

A. As to his paying cash?

Q. Yes?

A. Yes, sir.

Q. And his offering you a sum less than you asked for them?

A. Well, not at all times; no, sir.

Q. That is what you mean by his being a close buyer and business man?

A. Well, in one sense, and then again some of the 1296 peddlers or hucksters, as we call them, come in and buy a lot of fruit and not look at it to see the condition of it; he was always careful to look at the fruit.

Q. Those four occasions are the only times that you ever had any talk with him about business, were they not?

A. Yes, sir.

ADELBERT E. MAKELY, sworn for the people. 1297

Direct-examination by Mr. Quinby:

Q. You live in Buffalo?

A. Yes, sir.

Q. What is your business?

A. Keep commission house.

Q. Where?

A. 161 Scott. 1298

Q. Do you know the defendant, Kemmler?

A. Yes, sir.

Q. How long have you known him?

A. About nine months, I should think.

Q. Has he traded with you?

A. Yes, sir.

Q. During what portion of this nine months?

A. Well, he has traded with us quite a good many times.

Q. When was the last deal? 1299

A. I think it was about a week or ten days before he committed this crime.

Q. Have you transacted business with him yourself?

A. Yes, sir.

Q. Personally?

A. Yes, sir; once or twice; my man most always done it.

1300 Q. What is your man's name?

A. Widner; George Widner.

Q. What was the transactions that you had with him?

A. I sold him some eggs once, I think, and some lemons one time.

Q. Did he pay?

A. Always paid cash; yes, sir.

Q. These two transactions that you have reference to, you may state whether or not he was a close buyer?

1301

Mr. Sickmon: I object.

A. I always considered him a fair buyer; he used to be; he would always take what he would buy; some of them wouldn't do that; he always did; some them will buy it and take half of it and leave the other half unless you make them pay it.

Q. Did he examine the——

1302 A. Yes, sir; he used to always examine the goods pretty closely.

Q. What about his drinking?

A. I never saw him drunk but once that I remember of; that I thought he was drunk.

Q. Outside of this occasion when he was drunk, when you saw him in there transacting his business in your store, did you notice anything out of the ordinary with him?

A. No, sir.

1303 Q. Appeared the same—natural as any other person?

A. Yes; we used to laugh and joke with him there.

Q. He used to laugh and joke with you?

A. Yes, sir.

Q. Never saw him sitting around there with his head down the way he has got it here?

A. No, sir.

Cross-examination by Mr. Sickmon: 1304

Q. Upon these two occasions you dealt with him yourself?

A. Yes, sir.

Q. Are those the only times that you ever had any business transactions with him?

A. I think it was; I was most always around there; we sold him, but we sold him a great deal of stuff.

Q. When were those transactions had? 1305

A. Some time last fall.

Q. You have had no dealings with him since last fall, yourself, individually?

A. No, not myself.

Q. Or had any conversation with him?

A. Oh, yes; I have talked to him a great many times; most every day; used to be in the store.

Q. When was this occasion that you saw him intoxicated?

A. I think it was about two or three weeks before 1306 this thing happened. He came in one day; was telling me about some other peddlers, that he was trying to get them to treat him and he said they would not treat him and he would not buy them anything; and I noticed he was pretty full that day; that is the only time.

Q. You were not particularly acquainted with him, were you; had no relations with him except to make him those sales?

1307

A. No; that is all.

Q. You knew nothing of his habits when he was away from the market?

A. No, sir.

Q. And would never see him except upon the occasions when he came in to either buy of you or buy of some of your employees?

A. Only once I saw him; saw him one day full down on Court street.

1308 Q. Down on Court street?

A. Yes, sir.

Q. That was after or before you saw him full in your office?

A. Afterwards; I thought he was full; I see him staggering trying to get into the wagon; I was going home.

Q. He was out peddling?

A. Yes, sir.

1309 Q. That is the only time you saw him on his business trips around the city?

A. Yes, sir.

Q. You would never see him in the—seldom see him in the afternoon?

A. Yes, we used to see him quite a good deal in the afternoon in the summer time.

Q. He usually took his load in the morning, did he not, and went away with it?

A. Yes, sir; sometimes he would not load up until afrernoon.

1310 Q. You knew that he frequented the saloons about the market considerably?

A. I can't say; I never—yes, I did drink with him once; had a glass of beer with him once.

Q. You did not very often go to those saloons?

A. No, sir.

Q. The people who carry on this huckster business, as a rule, drink considerably, do they not?

A. Well, generally.

1311 Q. The people with whom he associated?

A. I think they do, good many of them.

Q. And upon two occasions you did see him intoxicated?

A. Yes, sir.

Re-direct examination by Mr. Quinby:

Q. You say you talked with him most every time he would come in?

A. Yes, sir. 1312

Q. Upon what subjects?

A. Oh, nothing particular; only we would always want to sell him something, because he was good pay.

Q. You talked to him: I want to know from you, in all these conversations you have had with him and business transactions, did you ever discover anything irrational about him in any way?

A. Nothing that I ever seen; no, sir.

1313

JOHN H. GAIL, sworn for the people.

Direct examination by Mr. Quinby:

Q. You live in Buffalo?

A. I do; yes, sir.

Q. And are in business upon the market?

A. Yes, sir.

Q. You know Kemmler, the defendant? 1314

A. Yes, sir.

Q. About how long have you known him?

A. Well, it may—sometime during last summer.

Q. Has he been trading with you along since last summer?

A. Yes, sir.

Q. Up to what time?

A. Well, up to pretty near the time of his trouble.

Q. Pretty near the time of the killing?

A. I can't remember exactly how near the time; 1315 we did not have much book account with him; I know he was in the store a few days before.

Q. Little louder?

A. He was in the store a few days before.

Q. Few days before the killing; had you had business transactions with him yourself; sold him goods?

A. Yes, sir.

Q. How many; to what extent?

1316 A. I couldn't say to what extent; he was a man that paid cash for goods.

Q. Have you sold him goods a great many times?

A. Great many times; we see him in the store nearly every day.

Q. Most every day?

A. Most every day for a while.

Q. You may state what kind of a business man he has been?

A. What?

1317 Q. As to his business qualifications; tell the jury what you know, from your——

A. Well, he was a close buyer; he figured very close in his buying and he looked very carefully at quality of goods that he was buying; he seemed to know when he got a good trade, as well as anybody else.

Q. What about his drinking—you say he was in there most every day?

1318 A. Well, I never knew anything about his drinking, or never knew him to get drunk only once; he was in my place one Saturday evening when he was drunk.

Q. That is the only time?

A. That is the only time I ever noticed that he was under the influence of liquor.

Q. And for the last year, you say—for the last year he has been in there most every day of his life?

A. Yes, sir.

1319 Q. From these talks that you have had with him, all the talks that you have had with him, did you ever discover anything out of the ordinary with him?

A. No, sir; I never did until he was drunk.

Q. He is like all drunken men, I suppose?

A. Yes, sir; like all other drunken men.

Q. They are not quite coherent?

A. No.

Q. But outside of that time?

A. Outside of that, I never noticed anything that would attract my attention at all. 1320

Q. Used to sit down in your place?

A. Yes, he would often come into the office and sit down and talk with me.

Q. Did he ever act the way he is now, with his head down?

A. No, sir.

Q. Never saw that before, did you?

A. No, sir.

1321

Cross-examination by Mr. Sickmon:

Q. When did you say you first knew this man?

A. Well, it was some time during last summer.

Q. How many times has he made purchases of you?

A. I couldn't tell you.

Q. Of you direct?

A. Well, that I couldn't tell you.

Q. Did you ever make a sale to him yourself? 1322

A. Yes, sir.

Q. When?

A. Well, I have not got dates, but I can remember of making sales to him.

Q. Tell us, if you can remember?

A. Well, I made sales to him in the fall?

Q. Last fall?

A. Yes, sir.

Q. What did you sell him last fall? 1323

A. I sold him onions.

Q. You knew that he got intoxicated, did you not, before you saw him this Saturday night?

A. I did not know that he got intoxicated before I saw him that Saturday night.

Q. Do you travel around the market any?

A. Yes, sir; in a business way.

Q. You do not mean to say that he did not get intoxicated?

1324 A. No, sir.

Q. How often do you travel through the market?

A. Well, sometimes once a day; sometimes once a week; sometimes three or four times a day; just depends on the amount of business I have.

Q. How often did you see him on the market?

A. Well, I don't know that I saw him on the market; I don't know when I saw him on the market; I saw him in my place of business?

Q. Did you ever see him any place except in your
1325 place of business?

A. Oh, yes; I have seen him around the streets.

Q. When he was peddling?

A. No, not when he was peddling; I never remember of seeing him when he was peddling.

Q. There would be times when he would not be around the market for two or three days, wouldn't there, that you would not see him?

A. There might have been, yes.

Q. When he was off on a spree?

1326 A. That I don't know anything about.

Q. You never heard of that?

A. I never heard that he went off on a spree.

Q. He would come in the store when his face was flushed and his eyes were blood-shot, would he not?

A. Well, not particularly noticeable.

Q. Did he ever?

A. Yes, he came into my place one evening when his eyes were blood-shot.

1327 Q. Is that the time you mean when he was intoxicated?

A. Yes, sir.

Q. Did he not upon any other occasion?

A. I do not remember of his coming in any other occasion.

Q. Has he not been in there mornings when his countenance shows indications of his having been intoxicated the night before?

A. No, sir; I don't remember. 1328

Q. Did you observe particularly to see?

A. I did not observe because I was not thinking anything about his being there intoxicated; I never knew that he drank to any extent.

Q. When he came in there, there would be other people doing business?

A. Yes, sir.

Q. You never noticed him particularly?

A. When he came into my office and talked with him I would, or when I would make a trade I no-noticed him. 1329

Q. What did you talk about?

A. We talked about business.

Q. Did you ever talk with him on any other subject?

A. Yes, sir.

Q. What was that?

A. Well, he spoke to me one time about meeting one of my business acquaintances of Philadelphia; came into the office and told me about his being in Philadelphia. 1330

Q. What did he buy of you; what sales did you ever make to him direct?

A. Sold him onions direct.

Q. Did you ever pay any more attention to him than you paid to any of the other hucksters that are about the market?

A. Well, I don't know that I did; we used to pay considerable attention to him because he bought good many goods; he was quite an extensive huckster. 1331

Q. You never met him socially any place?

A. No, sir.

Q. You do not know whether he frequented the saloons or not?

A. I do not know anything about his manner of life, living outside of his business transactions?

Q. Few times that he came into your place?

1332 A. Few times—he came in there frequently.

Re-direct examination by Mr. Quiuby:

Q. What was there about this conversation; about the friend of yours he met in Philadelphia?

A. Well, he came into the office and spoke to me
about meeting an acquaintance of his that he had
formerly bought goods of, that was in the same line of
1333 trade as I am; he said he had bought a great many
thousand dollars worth of goods of him and he really
thought the party would not recognize him here in
Buffalo, but he said he recognized him and called him
by name.

Q. When the party came here?

A. Yes, sir; this party from Philadelphia was in my place of business, and at the same time Mr. Hort was there, or he we call Hort.

Q. I understand you to say except on this occasion you never even noticed that he was a drinking man?

1334 A. I never noticed, no, that he was ever——

Q. Never noticed anything until you saw him intoxicated on this occasion?

A. He never attracted my attention so that I thought he was intoxicated.

Adjourned until May 9, 1889, at 9.30 A. M.

1335

Proceedings, May 9, 1889, 9.30 A. M.

JOHN KEHOE, sworn for the defendant.

Direct-examination, by Mr. Sickmon:

Q. Where do you live, Mr. Kehoe?

A. 69 Clinton street. 1336

Q. How long have you lived in Buffalo?

A. Going on three years.

Q. What is your business?

A. Huckstering.

Q. Do you know the defendant Kemmler?

A. Yes, sir.

Q. How long have you known him?

A. About nine months.

Q. Where did you get acquainted with him?

A. I got acquainted with him on the market. 1337

Q. Since the time you became acquainted with him have you met him frequently?

A. Met him frequently.

Q. Where would you meet him?

A. On the market and on the road, both.

Q. Have you seen him drink?

A. Yes, sir.

Q. How frequently; how often?

A. Drank every time I met him. 1338

Q. Have you seen him intoxicated?

A. Yes, sir.

Q. How many times have you seen him intoxicated?

A. Oh, I have seen him a number of times; I couldn't tell you how many times.

Q. Give the jury some idea of how many times you have seen him when he was the worse for liquor?

A. Well, I could not tell that to a—not to a number of how many times; mostly every time I met him he 1339
was the next thing to drunk, and then he would drink more when he would see me.

Q. Did you ever see him intoxicated at Martin's?

A. Yes, sir.

Q. About when was that?

A. It was after Chritmas.

Q. Last Christmas?

A. Yes, sir; about something about Christmas.

1340 Q. You may tell what you saw upon that occasion?

A. Well, I was going to work for Mr. Kemmler that morning; I went down to his place and he was not at the house; told me he was at Martin's; well, I went down to Martin's, me and Charley Spang, and Kemmler was sitting there on the table, and we sat there that day and drank all day; never got out of the house; the whole three of us drank until we were drunk, and other people were there, was treating Philip.

1341 Q. Do you know how much money he spent?

A. I should think he spent about fourteen or fifteen dollars; we had a number of drinks.

Q. Any other time that you saw him; did you ever see him at the Olympic theatre?

A. Yes, sir.

Q. Where is that?

A. On Canal street.

Q. When was that?

1342 A. This was—that was in the peach season.

Q. Last fall?

A Last fall.

Q. What was he doing there?

A. He was in the wine room treating girls down there; drinking and throwing away his money.

Q. Little louder?

A. He was in the wine room drinking. Well, he was drinking as hard as he could drink; spending his money in the wine room; buying drinks for the women and him—as drunk as he could be. 1343

Q. By the women, you mean the performers at the theatre?

A. Performers at the theatre.

Q. Where is the wine room, in relation to the theatre?

A. The wine room is a place attached, just off the stage where people goes in there and treats the women, and it costs them ten cents extra, when they drink wines, and everything costs them fifteen and twenty cents. 1344

Q. Costs double what it costs at the bar room?

A. Double what it costs at the bar.

Q. How much money did he spend that night?

A. He told me the next day—

Objected to by District Attorney.

Q. Never mind that; tell from your judgment, from what you saw him pay out? 1345

A. I should say myself, about fifty dollars.

Q. How long were you there?

A. I staid there from nine o'clock until about eleven.

Q. Was he drinking all this time?

A. All this time.

The Court: Who was?

A. Mr. Kemmler. 1346

Mr. Sickmon, (resuming):

Q. Have you seen him drink with anybody else?

A. With any one else?

Q. Besides yourself?

A. Why, he was treating everybody.

Q. What is that?

A. He was treating everybody.

Q. Treating everybody who was in the wine room? 1347

A. Certainly.

Q. How did you know he was intoxicated?

A. Well, I knowed from what he had drank and seen the way he acted. He was so full that he had to be put on his wagon and carted home.

Q. Did he stagger when he walked?

A. Yes, sir.

Q. Had to be helped upon his wagon?

1348 A. Yes, sir.

Q. Do you recollect anything that occurred outside of that that you have stated; did he lose any property there?

A. Yes, sir; he lost about fifteen—he had grapes on that day in a basket; he lost about fifteen or—

By Mr. Quinby:

Q. Do you know this yourself?

A. How is that?

1349 Q. Were you with him?

A. I was not with him; I was at the theatre at the time.

Mr. Quinby: Well, then, I object to it.

Mr. Sickmon, (resuming):

Q. Did you go in with him?

A. Yes, sir.

1350 Q. Were these crates upon the wagon when you went in?

A. Grapes was on the wagon.

Q. In crates?

A. They were in baskets.

Mr. Quinby: I object to it as immaterial.

The Court: What importance is there to it?

Mr. Sickmon: Perhaps that is not very material 1351 then; I will skip that.

The Court: No, I think not.

Mr. Sickmon, (resuming.)

Q. Have you seen him in other saloons?

A. Yes, sir.

Q. Did you ever see him at Julius Haas' saloon?

A. Yes, sir. 1352

Q. Where is that?

A. On the market.

Q. What was he doing there?

A. Sitting there, drinking.

Q. Did you ever see him sitting as he is sitting now?

A. Yes, sir.

Q. Where?

A. Seen him sitting in saloons in that way; not speaking at all. 1353

Q. How long have you seen him sit at one time?

A. Sat that way for half an hour or so, and then he would walk out.

Q. Say anything to anybody?

A. Never said much to anyone; buy a drink and sit down.

Q. From what you saw of his conduct upon the occasions that you have stated, how did his conduct impress you, as being rational or irrational?

A Irrational, sir. 1354

Cross-examination by Mr. Quinby:

Q. By irrational you mean that he was drunk, do you not?

A. I mean he was drunk and acted like a foolish man.

Q. Acted like all drunken men, did he not. How many times have you been drunk? 1355

A. Me? Well, I can't tell that.

Q. About how many times, now tell the jury, have you been drunk?

A. Drunk every time I can get drunk; every time I want to.

Q. Every time you can get an opportunity to get drunk, you get drunk?

1356 A. Every time I want to get drunk, I get drunk.

Q. And when you are drinking, you act irrational, do you not?

A. So does any man.

Q. I say you—you act irrational when you get drunk, do you not?

A. Why, yes, sir.

Q. You have been drunk a hundred—hundreds and hundreds of times, have you not?

A. Hundreds and hundreds of times.

1357 Q. And how many men in Buffalo do you suppose that you could bring here as witnesses that have seen you drunk?

A. I guess about a thousand.

Q. You could bring about a thousand that have seen you drunk hundreds of times?

A. Yes, sir.

Mr. Sickmon: Well, that he has not said.

1358 Mr. Quinby (resuming.)

Q. What particular man have you now in mind, that you travel with, that you could bring here as a witness for you that had seen you drunk fifty times; give us one name; one that knows the most about you?

A. There is quite a lot knows a bit about me.

Q. Quite a lot knows you; that you are a drunkard?

1359 A. Yes, sir.

Q. When he is full he sits that way, does he not? (indicating the defendant.)

A. Yes, sir.

Q. Sleeps it off?

A. He never sleeps it off, sir; he sits in that position.

Q. When he is full?

A. Yes, sir.

JOHN BURKHARDT, sworn for the defendant. 1360

Direct-examination by Mr. Sickmon:

Mr. Sickmon: This was the person for whom Jacob Burkhardt answered.

Q. Where do you live, Mr. Burkhardt?
A. 56 Central avenue.
Q. Do you know the defendant?
A. Yes, sir. 1361
Q. What is your business?
A. Well, I used to be a huckster myself, but I haint now at the present.
Q. When did you quit that business?
A. Oh, a little over eight months ago.
Q. When did you become acquainted with the defendant?
A. About two years ago in June.
Q. Have you seen him ever since that time, frequently? 1362
A. Several times; yes, sir.
Q. Have you seen him intoxicated?
A. Yes, sir.
Q. About how often?
A. Well, that is pretty hard to tell; I have seen him more or less; most every time I have seen him.
Q. How often would that be?
A. Sometimes once a week; sometimes three times a week; sometimes once in two weeks—just as often as I would see him, happen to run across him. 1363
Q. About every time that you saw him he was intoxicated?

Mr. Quinby: I object to it as leading.

The Court: It is leading.

Q. Did you ever see him when he had not been drinking?

1364 A. I have never seen him but what he has been drinking.

Q. When was the first time that you saw him intoxicated?

A. About the middle of June.

Q. What year?

A. 1889—or '87.

Q. Two years ago next month?

A. Yes, sir; that is when I got acquainted with him. 1365

Q. Where was that?

A. Down at the lower market.

Q. Have you drank with him yourself?

A. Yes, sir.

Q. What have you seen him drink?

A. I have seen him drink beer and seen him drink whiskey.

Q. This first week that you saw him when you say he was intoxicated, did you see him again that week?

A. On a following Saturday.

1366 Q. Where?

A. Up on the upper market.

Q. What market is that called?

A. Chippewa market.

Q. What did you notice about him then?

A. Well, he was pretty full then; he was so full that evening that they had to put him in a wagon to take him home.

Q. Who put him in a wagon?

1367 A. His wife and another little boy.

Q. What saloons have you seen him in?

A. Valentine Deckert's.

Q. Where is that?

A. Right opposite the market, sir.

Q. Right opposite this Clinton street market?

A. No, sir; opposite the Washington street market.

Q. Have you seen him other Saturday nights?

A. Several Saturday nights after that.

Q. What was his condition then? 1368

A. Well, he would drink more or less through the day, so that in the evening he would be so tight that they would have to take him home.

Q. How often have you seen them put him in a wagon and take him home?

A. Oh, four or five different times.

Q. Since you quit the huckster business about eight months ago, have you seen him occasionally?

A. Yes, sir; I have seen him the Monday before the—— 1369

Q. Killing?

A. Yes, sir.

Q. Where was that?

A. That was on Michigan street.

Q. What did you notice about him at that time?

A. Well, he was selling eggs and I spoke to him and he acted kind of queer to me.

Mr. Quinby: I object to that and I ask to have it stricken out. 1370

The Court: Strike out the latter part of the answer.

Q. How do you mean by queer; describe to the jury how he acted?

A. He acted like a man that was under the influence of liquor, and did not know what he was doing.

Q. At one time near Eagle street when he was turning out for the cars, what did you notice? 1371

A. That was, I think, if I am not mistaken, about two days before; I was on a car on my road going home and I seen him and two other—one boy and another young man in a wagon with him, and as he was going to turn out for the car he very near fell out of the wagon; he was so full then that he could not hardly drive the wagon any more.

Q. From what you saw of his conduct upon the

1372 occasions when you have seen him, how did it impress you, as being rational or irrational?

A. I should think it was irrational by the acting of it.

Cross-examination by Mr. Quinby:

Q. By that you mean he was drunk?

A. No, sir; I don't mean he is drunk, for a drunken man sometimes knows what he is doing.

1373 Q. How is it with you?

A. How often do you get drunk?

Q. How is it with you?

A. Well, I never get drunk myself; so, therefore, I think I know the difference.

Q. Was you ever drunk in your life?

A. No, sir; not that I know of.

Q. Did you know if you were drunk?

A. Well, I felt pretty good, but——

1374 Q. Do you drink?

A. I have drank, yes, sir; drinking now.

Q. How long have you drank?

A. Ever since I am a boy big enough to drink (laughing).

Q. Do you think it is cunning?

A. No, sir; I do not.

Q. Then what are you laughing at, sir?

A. Well, what I am laughing at; you asked me about drinking; I have drank when I was a baby.

1375 Q. You answer my questions; how old were you when you commenced to drink?

A. In what way, sir?

Q. To drink liquor?

A. Oh, I should say along about sixteen or seventeen—

Q. What is your age now?

A. Thirty-eight.

Q. How many drinks do you take a day on the average?

A. Depends upon how I feel. 1376

Q. About the average; give us the average?

A. Sometimes I take one, sometimes I take none. Sometimes I take six.

Q. Do you take more than six?

A. Sometimes, if I feel like it; yes, sir.

Q. How many more than six?

A. Not any as I know of.

Q. Did you ever take more than six drinks in any one day that you now recollect?

A. I never kept track of it; I could not say. 1377

Q. Why did you fix it at six?

A. Because I generally—that is my allowance; the largest I generally take.

Q. You figure down to six drinks?

A. Yes, sir.

Q. Now, sir, what do you say your business is?

A. I used to be a huckster.

Q. What are you now?

A. Painter, sir. 1378

Q. How long have you been a painter?

A. Oh, little over fifteen years, on and off.

Q. What was your business the last months prior to the 29th day of March?

A. Huckstering.

Q. When did you quit huckstering?

A. Oh, you mean this last past—

Q. Oh, yes?

A. Oh, was painting then right straight along.

Q. How did you come to see Kemmler so much in these saloons? 1379

A. I did not see him, say that I seen him, in saloons in the past; I said I met him on the road, sir.

Q. You were out in the street?

A. Yes, sir.

Q. And saw him; now, you may state to the jury what peculiarity you saw about Kemmler other than his being drunk?

1380 A. Yes, sir; well, what I take it about being drunk—I think when a man is drunk, that is, that he ain't paralyzed, he knows pretty near what he is doing; but when a man has got his right senses, he had ought to know what he is doing; but the way he—

Q. What is the difference between Kemmler drunk and any other man drunk; describe the difference in his actions?

A. The difference is because he acts so kind of queer; he don't know what he is doing.

1381 Q. How does a drunken man act in that respect; any other man?

A. Sometimes he knows what he is doing; sometimes he does not. Well, sometimes some will do it one way and some will do it another.

Q. Kemmler did it in one way, did he not?

A. Not that I know of; I could not say—

Q. He was a peculiar kind of a drunken man you say?

1382 A. Well, he was the queerest man I ever see, if you call it drunk.

Q. Take this wagon; what did he do in the wagon when he was drunk, different from any other man as drunk as he was?

A. He would sit there sometimes and he would not care whether he would run to destruction, or not.

Q. Whether he what?

A. Whether he would run onto some obstruction with a wagon, or not.

1383 Q. How would another drunken man know in that regard?

A. He would kind of try to get out of the way if he could.

Q. You distinguish between drunken men, do you?

A. Yes, sir.

Q. Are you an expert upon drunkenness?

A. I don't know whether I am, or not.

Q. Is that your claim here?

A. That is my claim just now, yes, sir. 1384

Q. That you are an expert?

A. I do not claim I am an expert on drunkenness, but I claim I know what I am doing.

Q. You claim you can distinguish between the actions of one drunken man and another?

A. Between a drunken man and a man that is insane, or anything of that kind; yes, sir.

HENRY KEMMLER, recalled for the defendant. 1385

Direct-examination by Mr. Sickmon:

Q. What is Kemmler's, your brother's, age?

A. Twenty-eight, I believe; twenty-eight or twenty-nine; I am not just sure; I should——

Q. Either twenty-eight or twenty nine?

A. Yes, sir.

Q. Is your mother living?

A. No, sir. 1386

Q. When did she die?

A. She died, I believe, it is thirteen years now.

Q. Of what disease?

A. Consumption.

Q. Is your father dead?

A. Yes, sir.

Q. Was he a drinking man?

Mr. Quinby: Is it of any importance here? 1387

Mr. Sickmon: It is quite important.

Mr. Quinby: I object to it.

The Court: Answer it.

A. Yes, sir.

Q. Did he get intoxicated?

1388 A. Yes, sir.

Q. Frequently?

A. Once a week.

Q. How long have you known of your brother's drinking, the defendant?

A. Well——

Mr. Quinby: He went over that yesterday, if the Court please.

1389 The Court: Yes.

Mr. Sickmon: No, just asked him as to the four months prior to——

The Court: Well, you may answer this question.

A. Well, I have known him before, that he was always drunk—the four months that he——

1390 Q. What I want to know is how early, how young he was when he commenced drinking intoxicating liquors?

A. I should judge when he was about eighteen, twenty.

Q. How many of you are there in the family?

A. Just us three—four of us.

Q. Did you have any other brothers?

A. Yes, sir.

1391 Q. One of them died?

A. Yes, sir.

Q. Of what disease?

A. Consumption.

Q. Of what disease did your father die?

A. Green gog, he had.

Mr. Hatch: Green what; do you know how you spell it;—g-a-r-k?

A. Gog; he died in the German Hospital; that is what they called it. 1392

Mr. Sickmon (resuming.)

Q. What disease; what ailed him?
A. I could not tell; green gog; that is what they say he died with.

Mr. Hatch:

1393

Q. Was it not gangrene?
A. Might have been; I can't just remember.

Cross-examination by Mr. Quinby:

Q. How much younger are you than your brother?
A. Three or four years; I don't know just exactly whether he is twenty-eight or twenty-nine.
Q. How old were you when you first knew that your father drank? 1394
A. I was quite small.
Q. How?
A. About eight, ten years old.
Q. You were about ten years old when you first knew that your father drank?
A. Yes, sir.
Q. What was his business?
A. Butcher.
Q. You saw your brother in jail, did you not? 1395
A. Yes, sir.
Q. Had a talk with him?
A. Oh, yes; talked.
Q. You had a talk with him, did you not, in the jail?
A. Yes, sir.
Q. Did you ask him why he had killed this woman?

1396 Mr. Sickmon: I object.

The Court: Why?

Mr. Sickmon: No part of our examination; not cross-examination upon any point that we have asked him.

The Court: He may ask the question.

1397 Mr. Sickmon: Exception.

Q. What reason did he give you for having committed this act?

A. I understood him to say jealousy.

Q. Jealous of whom; did he say?

A. De Bella.

Q. You were interviewed by a reporter of the *Express* on or about the 1st of April, were you not; you came here to Buffalo with Frederick Tripner, did you not?

1398 A. Yes, sir.

Q. Frederick Tripner is who—your wife's father?

A. Yes, sir.

Q. And you came here and a reporter of the *Express* interviewed you and you told him that story, did you not?

A. I believe I did.

Q. Well, you were interviewed by a reporter of the *Express?*

1399 A. Yes, sir.

Q. Or of a paper?

A. Yes, sir.

Q. Did you tell him the truth?

A. I don't know what I have told him.

Q. Well, whatever you did tell him, was it the truth?

A. That I couldn't say because I was a little excited——

Q. Did you lie to him? 1400
A. Did I lie?

Mr. Sickmon: I object to that.

The Court: He may ask him if the statements made to the reporter were true.

Mr. Sickmon: He has answered that, that he could not tell.

1401

Q. I will ask you this, sir. At this interview by this reporter (I suppose I am obliged to show it to him; presents scrap to witness containing slips from newspapers;) were you asked this question: "What do you suppose is the cause which led William to commit this deed, was asked of Henry Kemmler." Were you asked that question by the reporter?
A. Indeed I couldn't remember any more. I was too much excited over the affair.
Q. Were you asked that question; I will finish the question; and to that did you make this answer:—— 1402

Mr. Sickmon: I object.

The Court: Let me see the paper, Mr. Quinby. (Counsel presents paper to the Court.)

The Court: I do not think it is competent. I think you may prove the facts by him, if they are facts; but his statements made to a reporter I do not think are competent at all. 1403

Mr. Quinby: Well, I suppose it to be the rule, if a person has made a statement different from what he makes upon the witness stand you may show it.

The Court: It would appear to be so, perhaps.

1404 Mr. Quinby: He says his brother was a drinking man prior to his coming here.

The Court: Yes.

Mr. Quinby: Now, I desire to ask him if he has not stated that his brother was a good, hard-working man.

The Court: You may ask him what the fact was.

1405 Q. Is that true that your brother was a hard-working man?

A. Oh, he did; before the four months he came here.

Q. Before he came here he was a hard-working man?

A. Yes, sir; about four months before he came to Buffalo.

1406 T. D. Crothers, M. D., sworn for the defendant.

Direct examination by Mr. Sickmon:

Q. Where do you reside, doctor?

A. Hartford, Conn.

Q. Are you connected with any institution at present?

1407 A. Yes, sir; with an inebriate asylum there.

Q. An inebriate asylum located where?

A. In Hartford, Conn.

Q. What is it called?

A. Walnut Lodge.

Q. Are you a physician?

A. Yes, sir.

Q. In charge of that institution?

A. In charge of the institution.

Q. Were you formerly physician of the inebriate asylum at Binghamton? 1408

A. Yes, sir.

Q. When?

A. I was assistant physician from 1873 to 1877.

Q. Besides being connected with the institution which you have named, what other occupation have you?

A. Well, I am an editor of a journal devoted to the discussion of disease; of the disease of drink and drinking men; and make that a specialty, the scientific study of drinking men and the literature of the subject. 1409

Q. And the effects of it?

A. And the effects of alcohol on the brain.

Q. How many years have you had charge of this journal; been editor of it?

A. Thirteen years.

Q. What is the name of this journal?

A. *Journal of Inebriety.* 1410

Q.. Since your connection with the inebriate asylum at Binghamton, down to the present time, have you made the study of inebriety and its effects upon the brain and morals of the person using intoxicating liquors a study?

A. Yes, sir, I have.

Q. For how many years have you made that a study; a specialty?

A. About fourteen—fifteen years; fifteen years since I began to study that specialty. 1411

Q. During that time have you examined large numbers of individuals who suffered from the excessive use of alcohol?

A. Yes, sir, very large number.

Q. About what number?

A. Oh, I have seen twenty-five hundred or three thousand cases, probably.

Q. Will you state the effects of alcohol upon the brain and the physical system generally?

1412 A. A man who uses alcohol to excess, as a rule has a defective brain. The first effect of alcohol stimulates the heart and the brain, and the second effect paralyzes it. So that a man, after using alcohol a while, has a defective brain—a paralyzed brain—a brain incompetent to decide on the relations of life and all the finer conditions. That is the general effect. It produces a species of degeneration—brain degeneration—particularly in persons who use it to excess and continuously, for any length of time.

1413 Q. What is the effect upon the moral sense?

A. Destroys a man's character; destroys his veracity; destroys his power of judging right from wrong, and particularly his veracity and his comprehension of right and wrong, and power of discrimination between good and evil. The degeneration affects the morals quite as well as it does the body and the the brain.

Q. How does it affect the physical system?

1414 A. Not so markedly. It affects the physical system in some degree, but not so marked as it does the brain and nervous system.

Q. What effect does it have upon the will power?

A. It lessens—destroys the will power; makes a man incapable of doing what he would do if he had not taken the spirits; destroys his will power; breaks it up.

Q. Take, for instance, a man whose father drank to excess and was drunk every week, and whose mother 1415 died of consumption. What would you say as to the probability of such a man inheriting a weak and excitable nervous system and weak brain?

Mr. Quinby: To that I object. There is no evidence here that Kemmler's father drank prior to the time of his birth. The boy says that he only knew when he was ten years of age, that his father was a drinking man.

The Court: Yes, that is true; nothing here to indicate that Kemmler's father ever drank any liquor until long after Kemmler was born. 1416

Q. What effect would the fact of his mother being a consumptive have upon the descendant?
A. Well, consumption and insanity are closely related.

Mr. Quinby: A little louder.

A. Consumption and drinking are very closely related. 1417

Mr. Quinby: Wait a minute. To that I object.

The Court: He has not asked you that.

A. You asked me the effect on the boy, of the mother—

Mr. Sickmon: 1418

Q. Effect upon his brain.
A. That the brain of consumptive children would be defective; be defective; defective; impaired; not strong; not the same.
Q. What relation or connection has consumption with the drinking habit?
A. Very close relation. They are the same family group. Consumptive parents have inebriate children. 1419
Inebriate parents have consumptive children.

Mr. Quinby: Now you are not being asked that.

Mr. Sickmon: That was in response to what I asked him.

Mr. Quinby: I think not.

1420 Mr. Sickmon, (resuming):

Q. Is it a well-known fact that the offsprings of consumptives have a tendency to drink?

A. Yes, sir; very marked.

Q. What would you say of a person who drank early in life and continued the practice for eight or ten years; would it be possible for such a man to have a normal brain and act in a rational manner?

A. No, sir; not generally.

1421 Q. Take a man who for several months had used intoxicants to excess, and who, for several months, had been intoxicated many times; who had done many foolish and irrational things while under the influence of alcohol, such as to jump into a watering-trough, sell articles below their value when offered more for the same goods, the same article; who, on a certain night, is known to be drunk, and, early in the morning following, commits a crime; what would you say as to this person being able to fully appreciate the nature
1422 and quality of such an act, and whether such a man would be able to premeditate crime?

Mr. Quinby: Well, he has hardly brought himself within the rule. He has over-stated the proposition. "Do many foolish things," he says.

Mr. Sickmon: "Such as"—I denominate the foolish acts.

1423 The Court: I think he may answer.

A. In all probability, such a man would be unsound and incapable of discriminating as to the quality of his acts.

Q. Take a man with this hereditary taint and these habits of intemperate drinking, and add to this the fact that he drank enormously at times, say a quart of whiskey at one time, would that still further weaken his brain and moral power?

A. Decidedly so. 1424

Q. Will you state some of the symptoms of alcoholic insanity?

A. Delusions of persecution; delusions of the infidelity of his wife; delusions of poisoning; delusions of fear, and general incapacity to appreciate his surroundings, or the relation that he has to those who are nearest to him.

Q. Is it a fact that such persons have ideas of persecution and are apt to imagine infidelity upon the part of their wives? 1425

A. That is one of the most marked symptoms of those cases. It exists in nearly all the cases.

Q. Have you seen the defendant?

A. Yes, sir.

Q. Where?

A. This morning, in jail.

Q. Did you make an examination of him?

A. A general examination.

Q. What did you discover? Did you talk with him? 1426

A. Yes, sir.

Q. Just state to the jury what you discovered in relation to his intellect?

A. Well, he seems to be—he seemed to my judgment to be a man of weak intellect; imperfect brain development, and more or less incapacity to appreciate what I had to say, in the questions I asked him. He was hesitating and doubtful, and showed some suspicions as to the proper answer to give me. I found 1427 he has a dilated pupil, which is another sign of some brain trouble, in connection with the other history. But, a general appearance of a man incapacitated, and a man more or less defective and degenerate, from various causes.

Q. Is a distended pupil an indication of insanity or unsoundness of brain?

A. It is, with other symptoms. By itself it is very

1428 —but in connection with other symptoms, it is a very prominent sign of some disturbance of the brain.

Q. Do you find those other symptoms in connection with——

A. No, sir; I did not examine him carefully enough.

Cross-examination by Mr. Quinby:

1429 Q. Doctor, you say that you are connected with an asylum?

A. Yes, sir.

Q. In Connecticut?

A. Yes, sir.

Q. Is that a private or public——

A. Private asylum.

Q. Who got that asylum started?

A. A company.

Q. It is a stock company?

A. Yes, sir.

1430 Q. You are one of the——

A. I am one of the stockholders.

Q. ——incorporators?

A. Yes, sir.

Q. And you are the head of it?

A. Yes, sir.

Q. It is a business enterprise; is not in charge of any officers of the State?

A. No, sir.

1431 Q. You are the originator, are you not, of what is termed—of what you call "alcoholic insanity"?

A. No, sir. No, sir.

Q. Are you not the man that has written a book on alcoholic insanity?

A. No, sir.

Q. Are you not the Doctor Crothers?

A. I am a Doctor Crothers, yes, sir.

Q. Are you not the man that wrote the book?

A. The book was written fifty years ago, on the subject. I am a man who defended the theory. 1432

Q. This journal—you publish that journal, do you not?

A. Yes, sir.

Q. In connection with this stock company?

A. Yes, sir.

Q. And it is for the purpose of advertising, among some things, is it not, your institution?

A. No, sir.

Q. Is not that one of its objects? 1433

A. Not at all.

Q. Don't you advertise your institution in it?

A. The Journal——

Q. Don't you advertise your institution in it?

A. I do, and I advertise all other institutions in this country.

Q. I ask you the question now; just confine yourself, please.

A. Yes, sir, certainly. 1434

Q. You advertise your institution in your Journal?

A. Yes, sir.

Q. When did you first contemplate being a witness in this case?

A. About two weeks ago, I think.

Q. Had you ever seen the defendant at that time?

A. No, sir.

Q. Had anything been submitted to you in his case?

A. Yes, sir. 1435

Q. To pass upon?

A. Yes, sir.

Q. What?

A. Well, the supposed evidence; the evidence that had been taken on the Coroner's inquest.

Q. Of what? Of his drunkenness?

A. Of his drunkenness.

Q. Anything more?

1436 A. Of his general history.

Q. What was the general history?

A. That of continuous drunkenness, and the character of the crime, and the condition at the time of the crime.

Q. The condition at the time of the crime?

A. Yes, sir.

Q. We will get at that in a moment. You are in conflict with many of the recognized standard authors upon this question of alcoholic insanity, are you not?

1437 A. I do not think I am; no, sir.

Q. Do the standard authors claim that there is anything of alcoholic insanity, beyond the mere fact that it may produce a disease of the brain, the same as other things may produce a disease of the brain, which leads to insanity?

A. That is my view. That is the view of the standard authors.

Q. That there are various things that may produce
1438 a disease of the brain?

A. Certainly.

Q. Which ends in insanity?

A. Certainly.

Q. What is insanity?

A. Disease of the brain.

Q. Evincing itself how?

A. By irregular acts; irregular conduct and thoughts and so on.

Q. Out of what we call the ordinary?

1439 A. Yes, sir, out of the ordinary.

Q. What particular definition would you give to insanity, produced by alcohol?

A. Nothing more than alcoholic insanity.

Q. Is it dementia?

A. No, sir, not specifically.

Q. It is not dementia?

A. Not specifically, no, sir.

Q. What are the larger divisions of insanity?

A. The larger divisions?

Q. Yes; what is generally the first, in ordinary cases of insanity? 1440

A. Well, there is mania; there is dementia; there is melancholia; those are some of the divisions.

Q. I do not understand you to say that this man is insane, do you?

A. No, sir, I did not say that he was insane.

Q. Didn't say that he was insane. So that from what you knew—that this man was a hard drinking man; that his mother had consumption—was that told you? 1441

A. No, sir, not till this morning.

Q. Then all that was told you in this communication that you had to come here, was that he had been a hard drinking man?

A. The facts of his drinking, yes, sir.

Q. Then upon your mere knowledge that he had been a hard drinking man, you come here to testify as to his inability; is that true?

A. Supposing the facts that had been presented to me, were true; supposing they were to be true. 1442

Q. Well, he told you the facts; of his hard drinking?

A. Yes, sir.

Q. And upon the mere fact of his hard drinking, you come here to be a witness to swear to his inability, is that true?

A. Certainly, it is.

Q. What time did you get to the jail this morning?

A. About before nine sometime; before nine—perhaps half past eight. 1443

Q. About how long before nine o'clock?

A. Oh, perhaps half past eight.

Q. And how long was your examination.

A. Oh, fifteen, twenty minutes; half an hour; something like that.

Q. Well, fifteen, twenty minutes or a half an hour?

A. Yes, sir.

1444 Q. What ground did you go over with him; tell the jury?

A. Nothing except to look at the man and hear what he had to state, and ask him some questions; see about his capacity; mental capacity of answering.

Q. What questions were asked him and what answers were made?

A. I asked him about his memory.

Q. Give us the questions and answers?

A. I cannot specify every question again.

1445 Q. Give us one question?

A. I asked him about his memory; I asked him if he had a good memory. He said he did not.

Q. Whether that was true or not, you do not know?

A. No, sir, I do not.

Q. You knew the man was on trial here for a serious crime, did you not?

A. Yes. sir.

Q. Did you test his menory by any specific question?

1446 A. No, sir; I asked him generally about it.

Q. So you took his word, when you asked him if he had a good memory or a poor memory; he said no. Now what other question did you ask him?

A. I asked him in regard to his condition; his health; his present health.

Q. Give us the question?

A. I asked him if he felt very well. If he was well. He said he was very comfortable, and I asked 1447 him some general questions of that kind.

Q. What were the general questions?

A. Well, they were questions of that character. I cannot give you specifically each one.

Q. Give us every question that you asked him and every answer?

A. I asked him if he remembered the crime. He hesitated. I pressed the question in another way. He still hesitated.

Q. What question did you ask him in another way? 1448

A. The same question, in another form.

Q. What question did you ask him? Give us the form of the question.

A. I cannot specifically. I cannot just give you the words, the exact wording of it.

Q. Give us as near as you can?

A. I cannot do that particularly.

Q. What was the first question you asked him about committing the crime?

A. I asked him if he remembered the circumstances of the crime. 1449

Q. What did he say to that? You say he hesitated.

A. He hesitated. Finally, after pressing the question, in two or three different ways, he said he thought not. He thought he did not remember it.

Q. He thought he did not remember it. That is his answer?

A. Yes, sir.

Q. You took his word for that? 1450

A. Well, I took——

Q. Did you take his word for that?

A. Do you ask me if I believed him?

Q. Did you believe what he said to you?

A. I have no reason to doubt or disbelieve him.

Q. Did you believe what he said to you?

A. Well, I do not know whether I can answer that question, whether I believed or didn't believe.

Q. You must; because here you are asking a man to find out about his mental condition. You must either believe or disbelieve if you are going to base an opinion upon it, must you not, doctor? 1451

A. Well, I——

Q. You must either believe or disbelieve what he said to you?

A. I did neither. I held myself in abeyance without forming an opinion.

Q. Do you mean to tell this jury that when he

1452 hesitated, and he said he did not think he did, that you formed no opinion; that you could keep your mind free from any impression or opinion as to the truthfulness of what he was saying?

A. Certainly I do. Certainly I do. I don't take one man's statement.

Q. Ah, yes. We will pass that on. So that the truthfulness of that answer being in abeyance in your mind, as you term it, you could predicate nothing upon that, could you?

1453 A. Certainly not.

Q. What was the next question you asked him?

A. I asked him about his memory in regard to his business.

Q. Well, what question did you ask him?

A. I asked him if he remembered the transactions, his business transactions, minutely.

Q. Did you use the word "minutely"?

A. No, sir, but——

1454 Q. What word did you use?

A. Asked him if he could remember what he had done, what he had sold, what he had bought last month.

Q. When?

A. Last month—month before the crime.

Q. What answer did he make to that?

A. He hesitated; gave no answer.

Q. He hesitated and gave no answer?

A. Gave no answer.

1455 Q. Then what did you ask him next?

A. I asked him the same question in a different form.

Q. Give us the form?

A. I cannot do that. I cannot give you the specific form and the same hesitating answer.

Q. What did he say to that?

A. The same hesitating answer.

Q. You say he did not answer before; there must be some answer or there could not be hesitation.

A. The same hesitation and refusual to answer; "didn't know," or something equivalent to that. 1456

Q. What did he say; did he say he didn't know?

A. No, he shook his head and didn't say anything.

Q. Did that remain in abeyance in your mind?

A. Certainly.

Q. So that you could predicate nothing upon that?

A. Certainly not.

Q. What was the next question you asked him?

A. I asked him in regard to his father and mother.

Q. What question did you ask him in regard to his father? 1457

A. I asked him if his father was a drinking man.

Q. Yes.

A. He said he was.

Q. Yes.

A. I asked him——

Q. What other question?

A. I asked him if his father got intoxicated. He said he did. I asked him how often he became—how often he was intoxicated; he said he thought every week, at least on Sunday; I asked him what he drank; he said he drank beer; I asked him if his mother was living. 1458

Q. Is that all you asked him about the father?

A. I asked him if his father—what his father died of; if he was dead; he said he was dead; I asked him what he died of; he said of some brain disease; he said he died in a hospital.

Q. Is that all you asked him about the father? 1459

A. I think it was.

Q. Now, this drinking that you spoke about on behalf of the father; you don't know whether it was prior to his conception or not, do you?

A. No.

Q. Was not that important to know?

A. Well, he couldn't answer that, perhaps.

Q. Was it not important for you, as a physician, to know?

1460 A. No, sir; no, sir.

Q. It was not?

A. It was not.

Q. Let me ask you this question, then: Suppose a man does not drink, then becomes the father of a child, and some time afterwards goes to drinking; that wouldn't have very much of an effect on his brain, would it, after he was born?

A. The drinking might be a mere accident.

Q. Would that have any effect on the already born child? 1461

A. You cannot answer that. No one can answer that.

Q. Do you, as the president of an institution in the State of Connecticut, mean to tell me that you cannot answer whether a man's drinking before or after he conceives, or is the father of a child, will have any effect upon him?

A. Cannot answer; no, sir;

1462

Mr. Sickmon: Do you insist that the father can conceive?

Mr. Quinby: Well, he is a party to the conception.

A. No one can answer that definitely.

Mr. Quinby (resuming):

Q. You want to place yourself upon the record as saying no one can answer that question, do you? 1463

A. Certainly, I do.

Q. Now, sir, what did you ask him in regard to his mother?

A. I asked him if she was a healthy woman; he said not. I asked him what her trouble was. He said she had ulcers on the legs. I asked him what she died of. He said, of consumption.

Q. What else.

A. I asked him if he had any brothers and sisters. He said he had one brother, who died of consumption. 1464

Q. What else?

A. Then I asked him if he had——

Q. About the mother?

A. I think nothing more.

Q. That completes your examination in regard to the mother?

A. Yes, sir; I think that is about all I asked him, of that.

Q. Did you ask him his age at the time of his mother's death? 1465

A. No, sir, I did not—yes, sir, I did.

Q. What did he say?

A. I think he—I asked him that question. He said he was about sixteen years of age; I think so.

Q. Did you ask him how long she had had consumption?

A. No, sir; I did not.

Q. Did you ask him whether the mother's consumption was hereditary, or from some acquired disease? 1466

A. No, sir.

Q. Would it make any difference, in your mind, whether or not a child would be affected, if the mother had not hereditary consumption, but had consumption from some disease acquired after the birth of the child?

A. Probably it would in some cases; yes sir.

Q. So that, so far as his case is concerned, you don't know whether the consumption of the part of the mother was hereditary? 1467

A. No, sir.

Q. Or afterwards?

A. No.

Q. That would be a very important fact, would it not be, in determining whether it would have any influence on the son?

1468 A. It would be a fact of some value, certainly.

Q. Consumption is not a disease of the brain?

A. No, sir.

Q. It is a disease of the lungs?

A. Disease of the nervous system.

Q. Of the lungs, is it not?

A. It is a general disease of the nervous system, as well as the lungs.

Q. Do you say that it is authority; we will take 1469 the case now of hereditary consumption; any consumption that can in any way affect the individual—that consumption in the parent produces a weakness in the brain power of the child?

A. Yes, sir. Yes, sir.

Q. Why is that so?

A. I do not know. No one can tell.

Q. Is it laid down in any authority to that effect?

A. Yes, sir.

Q. What authority; give us the names?

A. Apitzka, Bucknell & Tuke, Clausen, Mann, 1470 Magnan, Lentz, Parish, Kerr, Wright. Those are some of the principal names.

Q. Do they all state that to be a fact?

A. Yes, sir.

Q. The weakness that is transmitted to the child is not a species of insanity, is it, in anyway?

A. Not necessarily. Not necessarily.

Q. What is the rule?

A. They are feeble-minded.

1471 Q. It is a weakness of the——

A. Of the brain and nervous system.

Q. Is it not a weakness physically, too?

A. Yes, sir.

Q. Now, the weakness that you speak of is simply a general weakness of the whole brain power, is it not?

A. General, yes, sir; yes, sir.

Q. Memory?

A. Everything.

Q. Memory? 1472

A. Yes, sir.

Q. Will power?

A. Yes.

Q. Everything of that kind. What other question did you ask him?

A. I asked him in regard to whether he had had any specific disease or not.

Q. What did you ascertain?

A. He said he had.

Q. What did he say it was? 1473

A Well, it was not clear in his mind. He described symptoms to me which indicated the character of the disease.

Q. What symptoms did he describe?

A. Well, ulcers, and so on and so.

Q. Ulcers where?

A. Ulcers in the genitals.

Q. What?

A. Ulcers in the privates.

Q. When did he say he had that? 1474

A. Years ago.

Q. What other questions did you ask him?

A. I asked him if he had had those affections more than once. He said he had.

Q. What else?

A. I asked him if anybody had treated him here in town. He said they had.

Q. Who did he say?

A. He did not give me any names, but mentioned some physician on a certain street. 1475

Q. What else did you say to him?

A. I asked him if he had been cured of those disorders. He said he could not tell.

Q. What else?

A. I asked him if he thought they had broken up his health in any way. He could not answer.

Q. What else?

1476 A. I asked him if he thought he drank more when he was suffering in that way. He thought he did.

Q. Suffering in what way?

A. Suffering from these specific diseases.

Q. What did he say to that?

A. He said he thought he did.

Q. Go ahead.

A. I asked him if he wanted to—that is all I asked him, in that department. Then I questioned him whether—on this matter; whether he was very nervous
1477 in regard to the issue of this trial; whether it had caused him to be sleepless at night.

Q. What did he say?

A. He did not answer definitely to that.

Q. What answer did he make?

A. Well, he hesitated and shook his head; didn't give me any idea whether it did or did not. I asked him if he wished to live; if he was anxious that this trial should terminate in his favor, or if he wished to live; and he hesitated and finally said he did wish to
1478 live.

Q. That was natural, of course.

A. Yes. But he hesitated some time before he gave me an answer to that question.

Q. What else?

A. I think nothing more, in particular.

Q. Have you now stated your entire examination of this man?

A. In general terms; yes, sir.

1479 Q. If there is anything more: if you examined anything more, please state it now.

A. I listened to his heart; took his pulse.

Q. What—

A. Found nothing remarkable about his—

Q. Anything the matter with his heart?

A. No, sir; nothing specifically.

Q. What was his pulse?

A. His pulse was about eighty-five, and normal.

Q. What is the normal pulse? 1480

A. About that; from eighty to—

Q. Did you take his temperature?

A. No, sir; I did not.

Q. What other?

A. No other examination, except—

Q. Did that complete the physical examination?

A. That completed his examination; yes, sir.

Q. Have you now stated all that you can remember of your examination of this man, both as to his mind and to his body? 1481

A. Yes, sir.

Q. You did find, you say, an enlarged pupil?

A. Yes, sir.

Q. Of which eye?

A. Both eyes.

Q. Were they different?

A. From normal?

Q. No; was one eye different from the other?

A. No, sir. 1482

Q. Were they larger than normal?

A. Yes, sir.

Q. How much larger than normal?

A. Two-thirds.

Q. Do you know the cause?

A. I do not; no.

Q. There is an instrument for examining the eye, is there not?

A. Yes, sir.

Q. What is its name? 1483

A. Opthalmoscope.

Q. If, on examination by the opthalmoscope, the interior of the eye should be clear and normal, would then the fact of the dilated pupil be anything out of the way?

A. Might be only a temporary condition. No, sir; might be only temporary. In itself it is not a positive symptom.

1484 Q. Did you know at the time, that his eye had been examined by an occulist?

A. No, sir; I did not.

Q. A few days ago?

A. No, sir; I did not.

Q. Who prepared these questions to be asked you?

A. I do not know.

Q. How?

A. I do not know.

Q. Did you see them before you went onto the
1485 witness-stand?

A. I saw some questions there; yes, sir.

Q. Did you see these questions that were asked you?

A. I do not know what questions—I saw some questions—the first page. I saw a page of questions lying on the desk.

Q. Who prepared those questions?

A. I don't know definitely.

Q. You looked them over before you went onto the
1486 witness-stand?

A. Some of them, yes, sir. Two pages; the first two pages.

Q. So that they knew what your answer would be; you told them what your answer would be?

A. No, sir.

Q. Did you not tell anyone what your answer would be?

A. No, sir; no, sir; no, sir.

Q. What did you discover from your examination
1487 of the defendant this morning, during the fifteen,
twenty or thirty minutes, that was out of the ordinary?

A. First, an appearance of general defect; general mental defect.

Q. What was the appearance of his general mental defect?

A. Small brain; badly formed.

Q. Did you measure his brain?

A. No, sir.

Q. Then how do you know it was a small brain? 1488

A. By my sight. It is apparent to my sight.

Q. Can you tell the size of a man's brain by looking at his head?

A. Yes, sir.

Q. You can?

A. I can.

Q. Is it true that a small brain necessarily is a weak brain?

A. Not necessarily.

Q. A small headed man may be extraordinarily 1489
intelligent?

A. In some cases, yes, sir.

Q. That was especially true in the case of Alexander H. Stevens, was it not, of Georgia?

A. So said, yes, sir.

Q. Had a six-and-a-quarter head?

A. Yes.

Q. And you have known a great many men with a large head to be below the mental— 1490

A. Yes, sir.

Q. The ordinary mental make-up, have you not?

A. Yes, sir.

Q. Then what importance do you attach to the size of that man's head?

A. Looking at the man—

Q. No, no. We are talking about the head. What size hat does he wear?

A. I cannot tell you.

Q. You say the size of his head? 1491

A. Size of his head is below normal.

Q. (To the defendant:) Look up, Kemmler. Is it below the normal?

A. Yes, sir, below the normal.

Q. How much below?

A. Cannot tell you.

Q. What would you say the dimensions of his head are?

1492 A. I cannot tell you.

Q. Then how do you know they are below the normal?

A. From observation.

Q. He has not got as small a head as my friend sitting here, (referring to Mr. Sickmon)?

A. Yes, sir.

Q. Has he got a smaller head than he?

A. Yes, sir.

Q. How much smaller, do you think? You say 1493 you judge from appearances. How much smaller a head has he than Mr. Sickmon?

A. I cannot tell you. Cannot tell you how much.

Q. He wears over a seven inch hat, does he not?

A. The prisoner?

Q. Yes?

A. I shouldn't think he did.

Q. What do you call the normal size of the head to be?

1494 A. I cannot tell you in figures. I am only judging from general observation.

Q. You looked at his head?

A. Yes, sir.

Q. And saw it to be small?

A. Yes, sir.

Q. And that went into your mind as one of the factors as to his mental make-up, did it?

A. Certainly.

Q. What other thing besides the size of his head?

1495 A. The eye, and the position of the eye.

Q. What about the eye and the position of the eye?

A. The eye shows a defective brain.

Q. In what way?

A. It is faulty in the appearance; in the construction.

Q. Tell us, first, as to the appearance; where the fault lies in the appearance?

A. The eye is small. The size of it. The position of the eye.

Q. The size of it. We will take that. (To the defendant): Kemmler, look up again. Because he has a small eye, that is indicative of weakness of the brain, is it? 1496

A. That is one symptom; one symptom.

Q. Is it true that a person with a small eye has, generally, a weak brain?

A. No, sir; not necessarily.

Q. Then why do you say so in his case?

A. Because that corresponds with the other symptoms. 1497

Q. That corresponds with the size of his head?

A. Certainly.

Q. You say there was a fault in the make-up of the eye?

A. Yes, sir.

Q. What was the fault in the make-up of the eye?

A. The position in which they are placed in his head.

Q. (To the defendant): Look up, Kemmler, again. What is the matter with the position of his eyes in his head? 1498

A. They set too close together and far back. The angle over the eye approaches that of an idiot, rather than of an intelligent man.

Q. He is an idiot, do you think?

A. No, sir.

Q. How near to an idiot is he?

A. I cannot tell you.

Q. Give us some idea? 1499

A. I haven't any idea. I cannot show you any figures in that direction.

Q. How much nearer are his eyes together than the ordinary?

A. I cannot tell you that.

Q. Did you measure?

A. No, sir. I cannot tell you.

Q. Then, because his eyes are nearer together, that was one thing you considered?

1500 A. Certainly; that was the arch over the eye.

Q. What other thing about his eye—about the faulty construction—besides their being near together?

A. The arch over the eye.

Q. What is the matter with the arch over the eye?

A. The formation is unusual.

Q. In what way?

A. Too large; bulges out too much.

Q. (To the defendant:) Look up, Kemmler. It bulges out over the eye? 1501

A. Yes, sir.

Q. Have you ever given the study of phrenology any attention?

A. Yes, sir.

Q. Do you believe in the general principles of phrenology?

A. Yes, sir.

Q. Is it not true that the prominence over the eye is indicative of memory?

A. I do not know whether it is or not.

1502 Q. Is it not so laid down by Spurzheim and other authors?

A. Possibly phrenologists may lay it down so.

Q. You say you believe in it?

A. I believe in the general principles.

Q. You say that he is more than ordinarily prominent above the eye?

A. Yes, sir.

Q. Is he more so than my friend Hatch?

1503 A. Yes, sir.

Q. How much more?

A. I cannot tell you.

Q. Is he more so than Dr. Crego?

A. Yes, sir.

Q. You can tell by looking at him from there, that to be so? Is that it?

A. Yes, sir.

Q. Is he more so than I am?

A. Yes, sir. 1504

Q. Perhaps that is not a fair illustration—how?

A. Yes.

Q. Not so much as you are, is he?

A. I do not know.

Q. Did you ever look at yourself?

A. Cannot compare him with myself. I do not know.

Q. Did you ever look at yourself in a glass?

A. Yes, sir.

Q. Will you swear here that he is more prominent 1505 above the eye than you are?

A. I cannot tell. Cannot tell that.

Q. And that prominence above the eye, you say, went into your mind as one of the factors in this opinion that you have formed. Now, what other thing?

A. The whole face. The whole physiognomy all through.

Q. We will take it feature by feature. It is easy enough to generalize. Now, what other thing about 1506 his face? Is his nose out of joint, in any way. Has his nose anything to do with it?

A. No, sir. The whole face. The whole physiognomy.

Q. We have had the eye, the size of the head, the prominence above the eye. Now, what other feature is there wrong about that man?

A. Well, there is large ears; enlarged ears. That is another defective sign.

Q. That is another sign of insanity? 1507

A. No, sir. It is a sign of defective make-up.

Q. Now, we will take his ears. (To the defendant:) Kemmler, look up a little; we want to look at your ears. Has he more than the ordinary sized ear? Look around the court. We will look at Mr. Locke's ears there. Has he a larger ear than Mr. Locke, that gentleman sitting there?

A. Well, that I do not know.

1508 Q. Is not a large ear the sign of benevolence?

A. Depends on whose head it is on.

Q. Do you mean to say, as the principal of an institution in the State of Connecticut, that you took the size of the ear into account in making up your opinion as to the mental condition of this man?

A. I mean to say that the man's make-up, his ear, his eyes, his nose, his whole features and all, give me that impression. Not any one thing.

Q. That is not an answer to my question; you take
1509 them all together?

A. I will take them all together.

Question read by the stenographer as follows:

"Q. Do you mean to say, as the principal of an institution in the State of Connecticut, that you took the size of the ear into account in making up your opinion as to the mental condition of this man?"

A. Yes, sir. I answer yes, sir, I did. I did.

1510 Q. What other feature did you consider in forming this opinion?

A. His size.

Q. Size of the man?

A. Yes, sir.

Q. What has that to do with it? That is where I undoubtedly am deficient. What about his size?

A. Corresponds with his small head.

Q. What is his height?

1511 A. I do not know.

Q. Is he above or below the medium sized man?

A. Below.

Q. How much below?

A. I do not know.

Q. He is five feet seven, is he not?

A. I do not know. I cannot tell.

Q. What other thing besides the size?

A. Position of his head.

Q. Do you mean when he is sitting like that? (Referring to the position of the defendant, with his head down.) 1512

A. No; when he was talking with me in jail.

Q. What was the position of his head then?

A. Thrown down; looking up from under his eyebrows.

Q. You did not know why he is doing this, do you?

A. No, sir.

Q. It is easy enough for a man to hang his head, is it not? 1513

A. Certainly.

Q. Any man could come into the court room, if he is on trial, or otherwise, and sit that way all day?

A. Yes.

Q. He may be shamming that, may he not?

A. Possibly.

Q. If he is shamming it, then, of course, that should not be taken into account, should it?

A. Certainly; if that is true. 1514

Q. And you do not know, you say, whether he is or not?

A. No.

Q. What other thing?

A. The general appearance. The position of his head. His hesitation in answering.

Q. Now, when you asked him if he remembered committing the crime, and his hesitating—that would be a very natural thing. He had never seen you before, had he? 1515

A. No, sir.

Q. You were a stranger to him?

A. Yes, sir.

Q. Did he know your errand?

A. I do not know whether he did or not.

Q. Do you know whether or not his counsel told him that you had come on here from Connecticut to swear for him?

1516 A. I do not know.

Q. So that if he hesitated in acknowledging the commission of this terrible crime, would that be anything strange, in your mind?

A. Not by itself alone; not alone.

Q. Now, what other thing besides his hesitation, other than you have mentioned?

A. Well, I think I have given the general outline. About all there is.

Q. You have given now the general facts upon which you base this opinion? 1517

A. Yes, sir.

Q. Now I will ask you if you know—if you at that time knew of some other facts: Did you know that he was a business man?

A. Yes, sir.

Q. Had conducted his business up to the very morning of this crime?

A. No; I did not hear that.

1518 Q. You did not know that?

A. No, sir.

Q. Did you know that he was a huckster?

A. I was told he was; yes, sir.

Q. And that he bought his goods of various persons, upon one of our public markets, and commission houses there situated?

A. No, sir.

Q. That he was a close buyer?

A. No, sir.

1519 Q. That he was considered, by intelligent citizens, to be a sharp man of business? Did you know that?

A. No, sir.

Q. And that he was considered a good customer, because he paid cash every time? Did you know that?

A. No, sir.

Q. And that he was considered, by all these men, as above the ordinary huckster and business-man?

A. No, sir.

Q. If you had ever known those facts, Doctor, would that, if any way, have changed your opinion? 1520

A. No, sir; not necessarily; not necessarily.

Q. Not necessarily; but would it? Ought you not to have known those facts when you made this examination?

A. Not necessarily; no. Might be an insane man and do those things.

Q. Yes; you generally find insane men careful and sharp business-men, do you not?

A. It is possible to be so. 1521

Q. Everything is possible in medicine. I am talking generally.

A. Yes, sir; there are cases of men who are very sharp business-men, who are thoroughly insane.

Q. But would it not indicate to your mind that if this man had been in business here successfully; a close buyer; and that the men he had dealt with had never in their lives noticed anything out of the ordinary; never in their lives, in conversation with him 1522 in business transactions; that that would be some evidence of sanity?

A. It would be one of the factors.

Q. It would be some evidence that the man was of sound mind, would it not?

A. Certainly; it would be some evidence.

Q. Did you know the fact to be, or the facts to be, that on the morning that he committed this act, that he was entirely sober?

A. No, sir; I did not hear that.

Q. That he was seen, within a half a minute from 1523 the time that he completed the act; came out of the door, with his hands covered with blood; wiped them off and said to a man, or to a woman, when asked, "What have you done?" he says, "I have killed her"; and she says, "You don't mean it?" he says, "Yes, I have killed her, and I am willing to take the rope for it"—did you know that fact?

1524 A. I read that——

Q. Did you know that fact at the time that you made this diagnosis?

A. No, sir.

Q. So that, if he said, "I am willing to take the rope for it," he knew the consequence of his act, did he not?

A. No, sir, not necessarily.

Q. Do you think that is some evidence that he knew the consequence of his act?

1525 A. Yes, sir; it is some evidence.

Q. If he said "I have killed her," it would be some evidence that he knew the quality of his act, would it not?

A. Some evidence.

Q. And also the nature of the act, would it not?

A. Some evidence, yes, sir.

Q. Then suppose that he had walked entirely like a sober man, some distance, to a saloon, and when asking for a glass of beer, the man said to the bartender, 1526 in his presence: "Don't give this man a glass of beer, for he has brained his wife;" and the defendant again says—and this within five minutes after the commission of the homicide—he then says: "Yes, I did kill her," or words to that effect, "and I am willing to take the rope for it," again; would that again be some evidence in your mind that he knew the nature and quality of his act?

A. Certainly.

1527 Q. And the fact that he said, "I am willing to take the rope for it," would be some evidence in your mind that he knew the act to have been wrong?

A. Yes, sir.

Q. How?

A. Certainly, some evidence.

Q. What is the difference between a delusion and an hallucination?

A. An hallucination is a disorder of the senses; a delusion is a disordered fact—disordered impression on the brain. 1528

Q. You discovered nothing in the history of his case, of any hallucination, did you?

A. No, sir.

Q. He never heard any noises?

A. Not that I know of.

Q. Or mistaken in his eyesight, or anything of that kind?

A. Not that I know of, no.

Q. Did you know it to be a fact that there was a young man living there by the name of De Bella? 1529

A. No, sir.

Q. Who lived in the same house with them, and slept in an adjoining room, and boarded there?

A. No, sir.

Q. You do not know what relations De Bella had sustained to this woman?

A. No, sir.

Q. Or what ground there was for his believing that there was criminal relations between them? 1530

A. No, sir.

Q. So that when he stated that he was jealous of De Bella, to other parties, you do not know whether it was an hallucination or whether there was a fact to base it upon, do you?

A. No, sir.

Q. So you cannot state whether he had an hallucination as to that part?

A. No, sir. 1531

Q. Did you discover any hallucination in him?

A. No, sir.

Q. What other thing did you discover?

A. Nothing more than what I have told you?

Q. Nothing more than what you have said?

A. No, sir.

Q. Can a man, in any way, be insane, except the insanity known as dementia, without having delusions or halluciations?

1532 A. Yes, sir.

Q. What kind of insanity do you denominate that?

A. Well, you might call——

Q. How?

A. Epileptic insanity.

Q. What is epileptic insanity?

A. It is an insanity following or preceding an epileptic explosion; epileptic seizure.

Q. That is where they go into fits?

1533 A. Yes, sir.

Q. He never had a fit in his life, did he? It is generally true, is it not, that the appearance of insanity is evidenced by hallucinations or delusions?

A. That is one of the symptoms.

Q. Except where you get clear down into dementia?

A. That is the prominent symptom.

Q. And that is where a man is getting down—verging to where a man has no brain power at all?

A. Those are prominent symptoms, always.

Q. Now, Doctor, to take up another subject. You 1534 say the drinking of liquor to excess produces a disease of the brain?

A. Yes, sir.

Q. What portion of the brain does it affect?

A. The entire brain.

Q. It produces a fatty degeneration of the brain, if continued long enough?

A. Yes, sir.

Q. But it is simply a weakening of the brain power; 1535 is not that it?

A. Yes, sir, that is the effect of it.

Q. I suppose one glass of liquor in an entirely sober man, produces some effect upon the brain, does it not?

A. Yes, sir.

Q. Some effect on the brain?

A. Yes, sir.

Q. It is congestive in its effect?

A. Yes, sir. 1536

Q. Because it excites the heart and you get a larger amount of blood thrown to the brain?

A. Yes, sir.

Q. There are a hundred stages of conditions, of men who are addicted to the use of intoxicating drink?

A. Yes, sir.

Q. It has to go to extremes; to the extreme, before a man is in a condition to know whether a certain act is right or wrong, does it? 1537

A. Not necessarily: not necessarily; no, sir.

Q. You think not?

A. No, sir.

The Court: You mean, not to know.

Q. Not to know, I would say.

A. Not necessarily.

Q. To what extent; in what condition must a man be before he can say; before he does a certain thing; 1538 that that act is right or wrong?

A. One period of intoxication may destroy his power of conception; just one drunkenness.

Q. Just one drunk?

A. Yes.

Q. May destroy him entirely?

A. Not entirely, but for that time and place.

The Court: 1539

Q. You say that one drunkenness will destroy his power to determine between right and wrong?

A. Right at that time, yes, sir.

Q. While the drunk lasts?

A. No; for sometime afterwards.

Mr. Quinby:

Q. If a man is in a condition to be a good business man, and to pay his obligations promptly, would you

1540 not say that such a person was in a condition to distinguish between right and wrong?

Mr. Sickmon: Wait a moment. There is no evidence of that, that he incurred any obligations.

Q. That he paid cash for his business transactions, promptly, upon purchase. Would you say that such a person was incapable of distinguishing between right and wrong?

1541 A. I could not state. I could not say from that statement. I could not answer that statement practically, because he might and might not be.

Q. He might and might not?

A. Might not be.

Q. If, on the morning in question, this man arose about the hour of half-past seven, went out in his yard and told a boy there to water his horse that he was using in his business; then went to work to fix up a door that was somewhat out of repair, and his 1542 wife comes out and says: "I want some eggs for breakfast;" he takes her basket, gets into a wagon and gets her the requisite quantity of eggs and hands them to her, and then states he is going in to breakfast; would you say that that person at that time was in a condition to distinguish between right and wrong?

A. Couldn't say.

Q. Would you say that he was not?

A. Could not.

1543 Q. Would you say that such a person—

A. He might and he might not be.

Q. Yes, I understand; in medicine it is "might and might not."—

Mr. Sickmon: I object to any such comment.

Mr. Quinby, (resuming):

Q. That is true, is it not, Doctor? The counsel

says he objects. There are a great many "mights" 1544
and "might nots" in the medical profession?

A. Men do sane acts up to a certain moment and then do insane acts the next moment.

Q. Are you one of these men who believes that a man may be sane this second, insane the next, and sane the next?

A. I cannot say about that.

Q. Are you one of the men that believe that?

A. I cannot say about that.

Q. You can say whether you believe it or not, can 1545
you not?

A The question is not a fair question.

Q. Are you a person—I will ask you it again. There is such a theory, is there not, held by some men?

A. I do not know that there is.

Q. Have you ever heard it stated?

A. No, not—you are stating a general question; I don't know the— 1546

Q. Do you believe or disbelieve that a person may be sane one minute, insane the next minute, and sane the next?

Mr. Sickmon: I object to that.

The Court: Answer the question.

The Court: Exception.

A. I don't know such a condition as that. 1547

Q. If this person did the things on the morning in question, that I have related to you; getting up, &c.; will you say that that person would not know the nature and quality of an act as horrible as the act in question?

A. I will answer, as I said before: he might and he might not. You cannot tell. No living being can tell.

1548 Q. You would not say that he did not know it, would you?

A. Could not tell about that.

Q. You know nothing about it?

A. Could not determine it.

Q. Or no other man could tell about it?

A. Could not determine about that; could not determine.

Q. What compensation do you get, doctor, for coming here?

1549 A. I don't know.

Q. Does it depend on the result of this trial?

A. No, sir.

Re-direct examination by Mr. Sickmon:

Q. In making up your mind in relation to this matter, you were informed of the fact that liquor had been given to the defendant after his arrest and upon the same day? 1550

A. Yes, sir.

Q. And before this statement, which has been read, was made?

A. Yes, sir.

Q. You have stated in response to the counsel's question that the fact that his mother died of consumption, without knowing whether it was hereditary or not—you could not state as to the effect upon the defendant. Now, in arriving at your conclusion did you take in connection with that the fact that a brother of the defendant had died of the same disease—consumption? 1551

A. No, sir.

Q. Did not?

A. Did not.

Q. Now, the symptoms which the defendant described to you, of a syphilitic disease——

Mr. Quinby: He has not said anything about a syphilitic disease. 1552

Mr. Sickmon: That is what he stated in response to you.

Mr. Quinby: No, sir.

Witness: I said "specific."

Mr. Quinby: Specific. 1553

Mr. Sickmon (resuming):

Q. That is the same thing?
A. The same thing; yes, sir.
Q. What effect would that have upon the intellect?
A. Oh, degenerate it still further.

Mr. Quinby: Wait a moment. I object to the form of the question. 1554

The Court: He has answered it.

Mr. Quinby: I did not understand what his answer was?

The Witness: Still farther degenerate the brain.

Mr. Sickmon (resuming):

Q. Suppose a man had protracted periods of drinking intoxicating liquor to excess, extending over three or four days, and that during that time he ate little or nothing. Would that be apt to permanently injure his brain? 1555
A. Certainly. Most certainly.
Q. Would the effect of the liquor, the deleterious effects of the liquor, be increased by the fact of his not taking any solid food into his stomach?

1556 A. Yes, sir.

Q. If a man had been intoxicated during a week preceding the commission of the crime, and the night before had gone to bed in an extremely intoxicated condition; would he, upon arising in the morning, be in possession of his brain power?

Mr. Quinby: To that I object. It is not the evidence in this case.

1557 Mr. Sickmon: It is some of the evidence.

Mr. Quinby: No evidence that any intoxication occurred for a week prior to the commission of his crime.

Mr. Sickmon: For four days; from the Monday morning down.

Mr. Quinby: He was doing business the day be-
1558 before he committed this crime.

The Court: It is difficult, perhaps, to recollect just what the statement is. I think the witnesses have said that he was intoxicated on Monday and on this Friday.

Mr. Sickmon: And on Tuesday.

The Court: Well, you may be correct about that.

1559 Mr. Sickmon: My recollection is. I may be wrong about it.

The Court: But there is no evidence here, as I recollect, to the effect that he was intoxicated for any four days or for all of that week.

Mr. Sickmon: Well, for a number of days.

The Court: I think there is; that he was intoxicated on Monday and that Friday; that he came home intoxicated that Friday night, or Thursday night rather. 1560

Mr. Sickmon: But the evidence is that he had been drinking right along every day.

The Court: I think that is so.

Mr. Sickmon (resuming): 1561

Q. Suppose a man had been intoxicated upon Monday; been intoxicated the Monday previous, and had drank intoxicating liquors more or less from that time to the day before the commission of the offense, and upon that day had become seriously intoxicated; what would be his condition the next morning as to his brain powers, or to distinguish the nature and effect of the offense which he committed?

A. Well, a man in that condition would be imperfect, of necessity. He could not realize clearly his surroundings or conditions of necessity. 1562

Q. Brain be paralyzed?

A. Brain be paralyzed——

Mr. Quinby: To that I object.

A. ——and incompetent to determine the nature of his acts.

Q. Would he have the power to deliberate and premeditate an offense—be apt to? 1563

A. No, sir, not likely.

Re-cross examination by Mr. Quinby:

Q. Do you mean to say here that a man who will get up in the morning, and knows enough to tell the boy to water his horse; to fix up a door that is out of repair; to assist his wife to eggs that she needs for

1564 breakfast; don't know what he is doing when he takes up a hatchet and strikes her over the head with it?

A. Yes, sir, I do.

Q. And don't know that that is wrong?

A. I cannot say whether he would know whether—

Q. So that your notion is that a man can do all of those, and not know that he has got a hatchet in his hand and that he is taking the life?

A. And not be able to control himself. He may know, but not be able to control himself. 1565

Q. If he knows what he is doing, you say he may not be able to control himself?

A. Yes, sir.

Q. Because he is mad?

A. No, sir. He is demented with the insane impulse.

Q. You are one of the people who believe in insane impulses?

A. Certainly I do.

Q. You know what our statute is upon that in this 1566 State, do you not?

A. No, sir.

Q. You do not?

A. No, sir.

Q. What you call an insane impulse is an incontrollable impulse, is it not?

A. Certainly.

Q. Is it what you term a morbid criminal propensity?

1567 A. Might and might not be.

Q. Is this impulse a morbid criminal propensity?

A. Yes, sir, in some instances.

Q. Was it in this case, do you think?

A. There is strong probability that it was; yes, sir.

Q. It was a morbid criminal propensity?

A. It is within probability, yes, sir.

Q. Did you know this was the statute of this State: "A morbid propensity to commit prohibited acts, existing in the mind of a person who is not shown to 1568 have been incapable of knowing the wrongfulness of such acts, forms no defense to a prosecution." Do you know that to be the statute of this State?

A. No, sir.

Re-direct examination by Mr. Sickmon:

Q. This impulse that you have spoken of, was induced by a defective brain? 1569

A. Certainly.

Re-cross examination by Mr. Quinby:

Q. All brains are more or less defective, are they not?

A. Not necessarily; no, sir.

Q. How is it, generally speaking?

A. A man who drinks whiskey has a defective brain, of course? 1570

Q. Any man who drinks any amount of whiskey has a defective brain?

A. Yes, sir.

Re-direct examination, by Mr. Sickmon:

Q. And the more they drink, the more they are—

A. The worse they are; yes, sir.

Mr. Sickmon: We rest. 1571

Asa D. King, recalled for the people.

Direct-examination by Mr. Quinby:

Q. Mr. King, you tell the jury, from the time that you saw this man when he came out of the house, to

1572 the time that you left him, whether you discovered any indications of intoxication upon him?

Mr. Sickmon: I object to that. He has been over that.

Mr. Quinby: No, sir.

The Court: Do you object to it as re-opening the case? Is that the idea?

1573 Mr. Sickmon: No. The objection to it is that he has been over it once. He has asked the witness the same question.

The Court: I do not recollect whether he did or not. He may ask it now.

Mr. Quinby (resuming):

Q. Did you?
1574 A. I did not, sir.
Q. Did you discover anything different in him from any other man?
A. I did not, sir.
Q. Anything what they call irrational, in any way?
A. I did not.

Mr. Quinby: I want to ask Dr. Crothers one more question. Will you be kind enough to take the stand, Doctor? 1575

Dr. CROTHERS, recalled for further cross-examination.

By Mr. Quinby:

Q. Doctor, suppose it be true that immediately after the killing, the defendant took a little four-year-old girl from the room in which lay the deceased, took

her around to the residence of Mrs. Reid, before he 1576
went away; would that indicate to your mind that he knew enough to distinguish between a right and a wrongful act?

Mr. Sickmon: Wait a moment. "Was carried around to the residence of Mrs. Reid"—he ought to specify something of the distance.

Mr. Quinby: I will show him the map.

1577
The Court: Yes, show him from the map.

Q. There was a little four-year-old girl, the daughter of the deceased. Here are the four rooms, Doctor, occupied by the defendant and his family—"A," "B," "C" and "D"; this is the front part of the house; this is the street; here, at the right, is a doorway from the room "A," in which the homicide was committed; this is a stoop; the defendant took the child out of
this door, off upon this stoop and around to Mrs. 1578
Reid's, here;—

Mr. Sickmon: No, that is not the evidence.

Mr. Quinby: Yes, it is.

Mr. Sickmon: Took her just two or three steps, into this kitchen door.

Mr. Quinby: Well, I don't know. It might have 1579
been the kitchen.

The Court: I am not able to recollect about that. You may as well assume it to be the kitchen door.

Mr. Quinby, (resuming):

Q. I will assume it to be the kitchen door. Took it out of this door, around this stoop, to a lady who

1580 was in charge of this kitchen. Would that fact, in your mind—

The Court: Well, that is not exactly the evidence. He took the child there and left it there, and Mrs. Reid was over at the other house. She saw him leave the child there, and she went over and got it. That is the evidence.

Mr. Sickmon: Brought it from that door and left
1581 it outside of this door.

Mr. Emery: No, took it inside.

Mr. Quinby, (resuming):

Q. We will form the question according to what the counsel claims to be the evidence. He took the child out of this room, out around here, into a doorway in the premises where there was a lady living at
1582 the time; into Mrs. Reid's, of whom they rented; would that act, immediately after the killing, be any indication in your mind, that this defendant was able to distinguish between right and wrong?
A. No, sir.
Q. Taking his little child away from the scene of this horrible murder would be no indication at all in your mind that he knew what he was doing?
A. No, sir.

1583

Asa D. King, recalled for cross-examination by Mr. Sickmon:

Q. You had never seen Kemmler before?
A. I had not.
Q. Did you notice the defendant at all, to see whether there was anything peculiar about his actions?
A. I walked by his side, and he looked at me.

Q. He walked past you and went along out the walk and you followed him? 1584

A. To the walk; yes, sir.

Q. After you had looked in and seen this body, as it lay on the floor, and spoken to him, he walked right out and walked right by you, without saying anything?

A. He did, to the gate.

WILLIAM C. PHELPS, sworn for the people. 1585

Direct examination by Mr. Quinby:

Q. Doctor, you live in the city of Buffalo?

A. Yes, sir.

Q. And are a practicing physician and surgeon?

A. Yes, sir.

Q. And have been how long?

A. Twenty-two years.

Q. You are connected with the University of Buffalo? 1586

A. Yes, sir.

Q. That is a medical college?

A. Yes, sir.

Q. You are one of the—what are you: a demonstrator of anatomy there?

A. Yes, sir.

Q. How long have you been connected with this University?

A. About fourteen years. 1587

Q. What other hospitals are you connected with at the present time?

A. General Hospital.

Q. General Hospital of this city?

A. Yes, sir.

Q. What position do you occupy in that?

A. I am attending surgeon.

Q. How?

1588 A. I am one of the attending surgeons.

Q. What other position do you now occupy, if any?

A. That is all.

Q. And what public positions have you occupied?

A. I have been surgeon of the police.

Q. How long were you surgeon to the police?

A. About two years and a half.

Q. What were your duties as surgeon to the police?

A. In attending to sick policemen; attending
1589 people that were wounded and sick about the station houses; attending to people who were brought there on charges of being insane.

Q. Insane and drunkenness?

A. Drunkenness.

Q. How many individuals do you suppose, Doctor, have been attended by you for insanity alone?

Mr. Sickmon: I object to the question, how many he supposes.

1590 The Court: As a fact, he may state how many cases he has had under his charge.

Q. Yes?

A. A large number. I cannot tell.

Q. Get within the limit?

A. Oh, say a hundred.

Q. How many cases of intoxication and persons who have been on protracted drunks?

1591 A. Well, a larger number than that, I should judge.

Q. Have you made a study of insanity?

A. Yes, sir.

Q. And are familiar with the authorities?

A. Fairly so, yes, sir.

Q. Made a study of the influence of liquor upon the brain?

A. Yes, sir.

Q. And the diseases of the brain growing out of the use of alcoholic stimulants? 1592

A. Yes, sir.

Q. Have you seen the defendant Kemmler?

A. Yes, sir.

Q. When was the first time that you saw him?

A. 30th day of March.

Q. You were requested by me to examine this man, were you not?

A. Yes, sir.

Q. Where was it that you saw him? 1593

A. In the office of the Superintendent of Police; at Police Headquarters.

Q. What time in the day?

A. In the afternoon.

Q. About what time in the afternoon?

A. About three o'clock, I should judge; 3.30, I think, was the time.

Q. Any other physician with you?

A. Yes, sir. 1594

Q. Who was it?

A. Dr. Slacer.

Q. Of Buffalo?

A. Yes, sir.

Q. Tell the jury fully what examination you made at that time and in what condition you found the man to be?

Mr. Sickmon: I object to the admission of this testimony: first upon the ground that it was compulsory upon the part of the defendant, to compel him to furnish evidence against himself; and second, upon the ground that the relation of physician and patient existed between the defendant and the witness. 1595

Mr. Quinby: I will ask a preliminary question.

Q. What did you say to him, if anything, Doctor, upon the subject of your visit?

1596 A. I told him that I was a physician and had been sent there to examine into his physical and mental condition.

Q. By whom did you tell him?

A. I told him I was sent by the District Attorney.

Q. That you were sent there by the District Attorney to examine into his physical and mental condition?

A. Yes, sir.

Q. What did he say?

1597 A. He—well, I—

Q. Did he say anything?

A. He went on then and told me what I asked, up to a certain point.

Mr. Quinby: We say that the relation did not exist of physician and patient; that he was aware of who had sent him there, and the object of the visit.

The Court: Does that make any difference?

1598

Mr. Sickmon: That comes squarely within the case of the People vs. Stout, reported in 101 N. Y.

Mr. Quinby, (resuming):

Q. Did you in any way prescribe for him, Doctor?

A. No, sir.

Q. Did you render him any medical services?

A. No, sir.

1599 Q. You told him that you had come there to examine into his mental capacity?

A. Yes, sir.

Q. And his physical capacity?

A. Yes, sir.

Q. For the prosecuting officer?

A. Yes, sir.

Q. And then he voluntarily went on and made this statement?

A. Yes, sir.

Mr. Quinby: It seems to me, your Honor— 1600

Mr. Sickmon: Before that question is asked, I desire to ask him a few questions preliminarily—

The Court: Certainly.

By Mr. Sickmon:

Q. Did you tell the defendant, Doctor, that you were friends of his?
A. No, sir. 1601
Q. Did Dr. Slacer tell him that?
A. No, sir.
Q. Did you tell him that he need have no fears of you?
A. No, sir.
Q. That you were both friendly toward him?
A. No, sir.
Q. He answered freely all the questions that you asked him? 1602
A. No, sir.
Q. Up to a certain point did he answer all those questions freely?
A. Yes, sir.
Q. You told him that you were physicians?
A. Yes, sir.
Q. And surgeons?
A. Yes, sir.
Q. Came there to examine him?
A. Yes, sir. 1603
Q. To examine into his physical condition?
A. Yes, sir.
Q. And also his mental condition?
A. Yes, sir.
Q. You did not inform him that you were to be witnesses against him?
A. No, sir.
Q. You informed him that the District-Attorney

1604 wanted an examination made as to his mental condition?

A. I told him that the District-Attorney had sent us there.

Q. To make a mental examination of him?

A. Yes, sir.

Q. And also a physical examination?

A. Yes, sir.

Mr. Sickmon: We insist on the objection.

1605

Mr. Quinby: I do not desire to prove by this physician any declaration of the defendant as to the commission of this crime.

The Court: I am going to rule in this case that you may ask Dr. Phelps for his opinion as to the mental condition of this man at any time when he saw him, without going into the details of questions and answers of conversations which they had. 1606

Mr. Sickmon: I except to the admission of the testimony as qualified by the Court.

Examination by Mr. Quinby resumed:

Q. Doctor, I will ask you some general questions. You have heard the testimony of Dr. Crothers this morning?

1607 A. Yes, sir.

Q. You have seen the prisoner?

A. Yes, sir.

Q. You have observed him in court?

A. Yes, sir.

Q. What do you say as to the size of the prisoner's head as affecting the question of mental weakness?

A. I see nothing in the size of the head that would indicate any great deficiency of mental power.

Q. Has he a fairly sized head? 1608

A. Fairly sized.

Q. Is there anything about his ears that indicates mental weakness?

A. I noticed nothing.

Q. Is there anything about the protuberance of the frontal bone over the eye that indicates any mental weakness?

A. I have no knowledge of anything connected with the protuberance which would indicate mental enfeeblement. 1609

Q. Have you examined his eyes?

A. Yes, sir.

Q. Is there anything about the eye which shows mental enfeeblement?

A. Nothing that I discovered.

Q. Is there anything about his size, his stature, that shows any mental enfeeblement?

A. No, sir.

Q. Do you know the fact to be, or the facts to be, 1610 that on the morning of the killing he arose about half-past seven——

The Court: Assume that to be the fact. Put your question in the form of a hypothetical question.

Q. Assuming these to be the facts, Doctor, that he arose about half-past seven, went out into the yard near his barn, directed a boy there to water the horse; 1611 then proceeded to fix a door which was out of repair; that shortly after his wife came out and asked for some eggs; that he took the basket from the boy, got into the wagon and gave her the eggs. Would you say a person who did that was capable of distinguishing between right and wrong?

A. Yes, sir.

Q. And that a person who could do that would know the nature and consequences of an act?

1612 A. Yes, sir.

Q. That immediately after the killing he took a small child from the room in which the act had been committed out onto a stoop and around a short distance to a doorway and there left her; then went back; subsequently came out and met a lady who asked him what was the matter. He says "I have killed my wife"—or, "killed her"; and she says, "You don't mean that"; he says, "Yes, I have, and I am willing to take the rope for it." Would you say 1613 that such a person would know the nature and consequences of his act and know the act to be wrong?

A. Yes, sir.

Q. Does the fact that he said "I am willing to take the rope for it," indicate to your mind that he knew the consequences of the act that he had committed?

A. Yes, sir.

Q. That he was observed by this woman and a man, and the man walked with him out a little distance to a saloon; asked for a glass of beer, and the 1614 man with him said in his presence: "Don't give him the beer; this man has committed a terrible crime," or "has brained his wife," and this man asked some questions, and then he says: "Yes, I have, and I am willing to take the rope for it." Does that also indicate to your mind that he knew the nature and consequences of this act, and knew it to be wrong?

A. Yes, sir.

Q. You may state what observation you have made 1615 of this man, in the court room?

A. Well, I have seen him sitting here in court.

Q. Looking up, and what?

A. Generally looking down, whenever I have observed him.

Q. Have you noticed what he did besides?

A. Yes, I have seen him look up when you asked him to.

Q. When I did not ask him to, have you noticed him?

A. No, I have not noticed him looking up when you did not ask him to. 1616

Q. You may state whether such a position is easily assumed by any person?

A. It is, yes, sir. I have seen him assume it before.

Q. How?

A. I have seen him assume it before.

Q. Do you say it to be true—take the question that the counsel asked; that what we call a four days' spree will permanently injure the brain? 1617

A. Might and might not; a medical term.

Q. Might and might not. Would it always—you heard what Dr. Crothers said on the subject?

A. No, sir. I do not think it would always. I know it would not always.

Q. A man may use intoxicating liquors for years and yet not be a lunatic?

A. Yes, sir.

Q. May be able to know the nature and consequences of his act? 1618

A. How, sir?

Q. May be able to know the nature and consequences of an act?

A. And be drunk several times during his life, yes, sir.

Q. Be drunk several times?

A. Yes, sir.

Q. Be drunk for a hundred times?

A. Well, a hundred would be about the limit. 1619

Q. You have known cases where men have drank for how many years, where their mental perceptions were right?

A. Good many rears. I cannot tell the exact number of years.

Q. The fact that the defendant was a close buyer, good business man, paid for his goods promptly; would that be some evidence to your mind that the

1620 man had sufficient mental capacity to distinguish between right and wrong and know an act to be wrong?

A. Yes, sir.

Q. Taking these facts that I have given you, Doctor; that this man was conducting a business right along for a year before this, buying and selling goods; that what transpired on the morning in question you have already stated, and what transpired subsequent to the commission of the crime; what do you say as to whether or not, at the time of the commission of this 1621 act—from these facts—that the man knew the nature and consequences of his act and knew that act to be wrong?

A. I think he knew.

Q. Think he knew what he was doing?

A. Yes, sir, I do.

Mr. Quinby: I want to avoid any question, Your Honor, in the case, of these examinations. Perhaps it would be better for me not to go into them.

1622

The Court: All right.

Mr. Quinby: If the counsel would withdraw his objection, I would be pleased to go into it.

Q. Doctor, what effect, if any, does consumption have upon the mental organism; supposing it to be hereditary; consumption, upon the mental organism of a child born of consumptive parents?

1623 A. The chances are that the brain, as well as other organs in the body would not be of—have as much vitality as though the hereditary consumption was not in the family.

Q. You mean it would be a weakness that goes to the whole system?

A. Yes, sir.

Q. But it is not transmissible in the form—species of insanity?

A. I do not so understand it; no, sir. 1624

Q. Do you know of any authors that lay that down?

A. No, sir.

Q. Has it been so in your experience at all?

A. No, sir.

Cross-examination by Mr. Sickmon:

Q. You were sent by the District Attorney to make this examination?

A. Yes, sir. 1625

Q. How many other examinations have you made, at the request of the District Attorney?

A. Five or six.

Q. You made an examination in the Flannigan case?

A. Yes, sir.

Q. You made an examination of Peter Otto?

A. Yes, sir.

Q. You made an examination of Hermann? 1626

A. Yes, sir.

Q. Oliver?

A. Yes, sir.

Q. And of Lamb?

A. Who?

Q. Lamb?

A. No.

Q. In what other cases, at the request of the District Attorney, have you made examinations?

A. The Penseyres case was the only one, I think, 1627 that you have omitted, that I remember.

Q. Then there would be five in all?

A. Yes, about that.

Q. In four of those cases you testified; all except the Oliver case?

A. Yes, sir.

Q. The Flannigan was the first case, was it not?

A. Flannigan?

1628 Q. Yes.

A. I did not appear in the Flannigan case.

Q. I understood you to say that you did.

A. No, not the Flannigan.

Q. The Otto case, was that the first case that you examined?

A. Yes, sir.

Q. How long were you making that examination?

A. I saw him more than once.

Q. How many times more than once?

1629 A. I saw him probably three or four times. I generally see these cases three or four times.

Q. You were paid upon that occasion?

A. Yes, sir.

Q. What amount?

A. I think—

The Court: If the Court, please, that is of no moment. The County paid him and employed him.

1630 The Court: Is that of any importance, what he was paid in some other case?

Mr. Sickmon: I think so.

The Court: Why?

Mr. Sickmon: As bearing upon his testimony in those cases as well as in this.

1631 The Court: How is that?

Mr. Sickmon: As bearing upon his testimony in those cases.

The Court: We are not trying the other cases.

Mr. Sickmon: Well, I will take a ruling on it.

The Court: He may answer this question, if it is of any satisfaction to you.

Mr. Sickmon: I have just a curiosity to know. 1632

Mr. Quinby: Well, the bills are on file in the office of the Clerk of the Board of Supervisors.

Mr. Sickmon: The Doctor will perhaps remember.

Q. What was your compensation?
A. I think I got a hundred dollars on that case.
Q. What compensation do you receive in this case?
A. I do not know. Whatever the Court will allow. 1633
Q. You expect as much, do you not?
A. Well, yes, I expect as much.
Q. You expect to get a hundred dollars out of it?
A. Yes, sir.
Q. And Slacer a hundred—the other doctor?
A. Slacer may get more.
Q. Slacer you think, will get more. Does he make his bills larger?
A. Well, I do not know what Slacer will charge, I am sure. 1634
Q. In all of those cases in which you testified, you received a compensation?
A. Yes, sir.
Q. Larger or smaller?
A. Some larger and none smaller.
Q. None smaller, did you say?
A. None smaller.
Q. None smaller and some of them larger than a hundred dollars?
A. Yes, sir. 1635
Q. The excessive use of intoxicating liquors impairs the intellect, does it not?
A. It may.
Q. It does, does it not?
A. It may and it may not.
Q. Same persons have continued to be good business men, but insane upon other subjects, frequently?

1636 A. Yes, sir; it is possible for a man to be insane on some subjects and still be a good business man.

Q. Transact all his business rationally and intelligently?

A. Yes, sir.

Q. And have a delusion upon some particular point?

A. Yes, sir.

Q. Be insane upon that? You say you know of no authorities who say that consumption, that the 1637 children of consumptive parents have a predisposition to insanity?

A. I did not say so.

Q. Did you not, in response to the counsel's question?

A. No, sir.

Q. Is not that so?

A. That may and may not be so. I said that consumptive children were apt to have a lessened vitality 1638 in all organs. Of course, if the brain shared in that, as it would, I think that a person would be more liable to be insane, if the causes which produce insanity come upon them. I would say that.

Q. Then if the parents were consumptive, the children would have a predisposition to insanity?

A. No, I do not say that. I say if they were exposed to the causes of insanity, they would become insane quicker than a person who had strong vital organs.

1639 Q. Then as a rule, the children, the parents of insane people, in a large number of cases have been consumptives?

A. I do not know that that was not so.

Q. The brain being feeble, it would take a great deal less to unbalance it?

A. Yes, sir; that is true.

By Mr. Quinby:

Q. If the brain was feeble?

A. If the brain was feeble. 1640

William H. Slacer, sworn for the people.

Direct-examination by Mr. Quinby:

Q. You live in Buffalo?

A. Yes.

Q. You are a practicing physician and surgeon?

A. Yes. 1641

Q. How long have you been here practicing?

A. Sixteen years.

Q. What positions do you occupy now, if any—are you consulting——

A. Yes, I am consulting surgeon for the Sisters of Charity Hospital and for the Emergency.

Q. You were formerly connected with the insane department of the Erie County Alms House?

A. I was; yes, sir. 1642

Q. How many years were you there?

A. Six years.

Q. How many patients did you have under your charge during those six years.

A. Well, I think at no time there were not less than between three and four hundred.

Q. Were you ever surgeon to the police?

A. No, sir.

Q. You have seen Kemmler?

A. I have; yes, sir. 1643

Q. From time to time?

A. Yes, sir.

Q. When was the first time you saw him?

A. The evening of March 29th.

Q. Did you make an examination of this man with Doctor Phelps on the 29th or 30th?

A. On the 30th with Dr. Phelps; yes, sir.

Q. State fully the examination that you made—or

1644 I will ask you preliminarily: Did you tell him what your mission there was, or did Dr. Phelps?

A. On the 30th?

Q. Yes.

A. I told him that I was a physician and that we were sent there—or at least it was said by one or the other, Dr. Phelps or I, that we were physicians and we were sent there by the District Attorney.

Q. To do what?

A. To examine him.

1645 Q. As to what?

A. His mental and physical condition.

Q. Did you then make an examination?

A. Yes, sir.

Q. Of his mental and physical condition?

A. Yes, sir.

Q. You may state what that examination was?

Mr. Sickmon: I make the same objection that we did to the admission of Dr. Phelps' testimony, the previous witness. 1646

Mr. Quinby: I will pass it to save the question in the case, if the court please, if they raise the objection.

The Court: The question seems to be withdrawn.

Mr. Quinby: I pass it, under the objection.

Q. Doctor, you have seen this man in the courtroom? 1647

A. Yes.

Q. Seen his appearance?

A. Yes.

Q. Does the shape or size of his head in any way indicate to you any species of mental weakness?

A. Not particularly.

Q. Well, does it in any way?

A. No.

Q. Does the size of his ears in any way indicate mental weakness? 1648

A. No.

Q. Or mental disease?

A. No.

Q. The size of his body?

A. No.

Q. Has he any more prominence above the eye than is frequent among individuals?

A. I think not.

Q. Is there anything in the eye that indicates any mental disorder? 1649

A. Not that I could find.

Q. Did you examine his eye?

A. I did; yes, sir.

Q. Who else examined his eye with any instrument?

A. An oculist here named Doctor Hubbell and myself.

Q. Do you discover, Doctor, from the shape of his head, his ears, the size of his body, condition of his eye, any evidence of mental weakness? 1650

Mr. Sickmon: I object to that as incompetent under section 834 of the Code, for the reason that the information in relation to his eye was derived upon examination.

Mr. Quinby: Well, leave out the eye. Take it what you can see in the court-room and base your opinion upon that, Doctor. 1651

A. From what I know of the——

Q. No, no; I desire to avoid the question in the case of your being physician to him in any way. Look at his head, the shape of his head, the size of his head, the size of his ears, and the size of his body; do you discover anything in that of mental weakness?

A. No.

1652 Q. Now, sir; you know the fact to be, Doctor, that this man was a business man, conducting his business as a huckster in the city of Buffalo, and that he was a sharp, close buyer, and paid his obligations promptly?

A. I have understood so.

Q. That is proven in this case. Now, take those to be facts. Now, take it on the morning in question; supposing that on that morning he arose at the hour of half past seven; went out into his yard; directed
1653 a boy to water his horse; that he then proceeded to repair a door which was out of order; that his wife came out and asked for some eggs and that he took the basket and got into the wagon and got the eggs and brought them out and they were given to her; that subsequently he killed his wife by hitting her a number of blows upon the head with a hatchet; that immediately after the homicide he came out, took a little girl who was upon the premises around upon this stoop here which you have seen, and deposited her near the door of the kitchen of the house occupied by
1654 Reid, as shown upon the map (indicating on the map), then came out and met a lady; he was wiping his hands at the time upon a cloth; his hands were covered with blood; she asked him what was the matter; he said that he had killed his wife; killed this woman; and that he was willing to take the rope for it; that he went then in company with the man a little distance into a saloon; that he asked for a glass of beer; that the man in his company said: "This man has
1655 brained his wife; don't give it to him;" and he thereupon says "Yes, I did; and I am willing to take the rope for it." Would you say that such a person, at the time of the commission of the homicide, knew the nature and quality of the act that he was doing and knew that act to be wrong?

A. I think all this would indicate that he did.

Q. Would it be evidence to your mind that he did know the nature and quality of his act and know it to be wrong?

A. Yes, I think it would. 1656

Q. The fact that he said "I have killed her, and I am willing to take the rope for it," immediately afterwards, would be evidence, would it not, to your mind that he knew what he had done and knew it to be wrong; knew the consequences of it?

A. Yes, sir.

Q. The taking the child away from scene of the homicide outside, would indicate to your mind that he could distinguish between right and wrong, would it not? 1657

Objected to by defendant's counsel as leading.

Q. Would it, or would it not?

A. Yes.

Q. Would the fact that he was tending to his ordinary business immediately before the homicide, indicate to your mind that he was in condition of mind to know the nature and quality of the act that he was doing? 1658

A. It would tend to.

Q. Would it indicate to your mind?

A. It would it indicate to my mind; yes, sir.

Q. Is it true that people drink liquor for years without destoying their morals?

Mr. Sickmon: To that I object as leading.

Q. Is it true that people drink liquor for years without destroying their moral nature or moral perceptions? 1659

A. Yes, I think it is.

Q. Is it true that a man may be frequently drunk and drink liquor to excess and still know the nature and quality of his act, if not committed while he was absolutely in a state of absolute intoxication?

A. Yes.

1660 Q. Know the nature and quality of his act and knew it to be wrong?

A. I think so.

Cross-examination by Mr. Sickmon:

Q. The excessive use of intoxicating liquors, Doctor, injures the brain, does it not?

A. Yes, I think so.

Q. If continued long enough and in sufficient 1661 quantities, destroys it?

A. Yes.

Q. And the use of intoxicating drinks is a fruitful source of insanity?

A. It is a source of insanity; yes, sir.

Q. Quite a fruitful source, is it not?

A. Well, I guess there are quite a good many cases of insanity from the use of alcohol.

Q. A protracted period of drunkenness, without 1662 the person taking any solid food into his stomach, is more injurious to the brain than as if he ate his meals?

A. I think so.

Q. If a person went upon a protracted spree, extending over three or four days, and during that time drank large quantities of whiskey and ate nothing, would not the result of that be to permanently injure his brain?

A. No.

1663 Q. The tendency would be?

A. The tendency might be to permanently injure it; yes, sir.

Q. It would be an unusual thing if it did not to some extent injure his brain?

A. I think it would have some effect upon his brain.

Q. And each time that that was repeated the brain would be weakened? Would be liable to?

A. It would be liable; it might be. 1664

Q. That would be the tendency of those acts?

A. I think the more alcohol we consume the more the brain might be affected by the use of it; by it.

Q. And the deleterious effects of liquor would be more marked if the stomach were empty of solid food?

A. I think the man would be safer if he would eat and drink both.

Q. Where the liquor acts directly upon the stomach without any other substance being there, it would be more injurious; now, a person might transact business 1665 in intelligent manner, make close bargains, and still be insane; there have been instances of that kind, have there not, Doctor?

A. Yes, sir.

Q. Transact business in a sensible, business-like manner, right down to the moment when they were declared, almost to the moment when they were declared insane?

A. They might transact business and it might not 1666 be noticed by others.

Q. And the people with whom they dealt might not have noticed anything irregular in their conduct?

A. Yes, sir.

Q. Could you tell, standing where you are, at the distance that you are from the prisoner, simply by looking at him, whether he was insane, or not?

A. From the contour of his body, the shape of his head—

Q. Looking at him as he sits in court to-day? 1667

A. Whether he was insane or not?

Q. Yes.

A. I do not think I could.

Q. The testimony which you have given as to his condition is derived from the examination which you made at the police station, in part, is it not?

A. Yes.

Q. That enters into your decision?

1668 A. It certainly does; yes, sir.

Q. And that largely controls the opinion which you have given as to his responsibility for the acts which he might have committed?

A. It enters into it. I have examined him, I think, four times since.

Q. At the jail?

A. At the jail.

Q. And it is from the examination at the police headquarters and at the jail that you base your 1669 opinion?

A. Yes, sir.

Q. Now, if a person, for several days had been intoxicated, seriously intoxicated, the next morning after such intoxication, the brain would be to some extent paralyzed, would it not? It would not act—

A. I would not call it—I would not say paralyzed, I think; his brain might not be in a normal condition.

1670 Q. Its force and power would be weakened?

A. Yes, might be.

Q. And his moral faculties would be blunted, would they not?

A. They might be.

Q. Suffer to the same extent?

A. Yes, sir.

Q. So that he could not deliberate or premeditate to the same extent that he could, if his brain was in a normal, healthy condition—as fully as he could?

1671 A. I do not think he would be as capable of performing any—or following any line of thought or performing any duty so well as though he had not drank.

Q. And his ideas of right and wrong would be to some extent confused and impaired?

A. Yes, they might be.

Q. That is the result of an intoxication for a period of time, is it not?

A. Yes, I think the brain is somewhat impaired,

Q. Now, when the stimulus is removed, the person, 1672 upon the succeeding morning, would be liable to delusions, would he not, to some extent?

A. Why, I do not know that he would.

Q. Any little business troubles or affairs which he might have had would be exaggerated in his mind?

A. They might be.

Q. That is the effect of liquor upon a person, is it not?

A. I do not think it is upon all cases.

Q. That is the usual—that is the rule. A man re- 1673 covering from a protracted spree has exaggerated opinions about his difficulties? Whether they are financial or otherwise?

A. I presume they do.

Q. Or upon any other subject in which he is embarrassed or in difficulty?

A. Possibly.

Re-direct examination by Mr. Quinby: 1674

Q. You say a man who is getting over a drunk does not have as clear ideas, but you do not go to the extent of saying that he does not know what he is doing?

Mr. Sickmon: I object to that question.

A. Yes. 1675

Q. I say you do not say——

A. No, I do not.

Q. A man who awakes out of a sleep, sometimes, is not quite as clear as when he——

A. Yes, sir.

Q. A man, after eating a heavy dinner sometimes is not as clear and bright as he is before?

A. Yes.

1676 *Re-cross examination* by Mr. Sickmon:

Q. The defendant might have done—might have procured these eggs for his wife, fixed this barn door, set the child out on the porch, as it is stated that he did, and make these remarks to the woman—he might have done all of those things and still be insane?

A. Yes.

Q. And might be under the influence of liquor?

A. Yes.

1677 Q. To such an extent as to weaken and impair his intellect?

A. Yes, sir.

By Mr. Quinby:

Q. No evidence of that in this case, though, as you see, Doctor?

A. No.

Mr. Sickmon: I rather object to that form of the question. 1678

Mr. Quinby: He says no.

Evidence closed.

Recess until two o'clock.

1679

CHARGE OF THE COURT.

Gentlemen of the Jury:

The defendant has been indicted and placed upon his trial for the crime of murder in killing Matilda Ziegler, in this city, on the 29th day of March last. Evidence has been given on the part of the people which tends to show that this defendant came to the

City of Buffalo a year ago last November; that accompanying him was Matilda Ziegler, a woman not his wife, but the wife of a person living in Philadelpdia; that at the time he came here he left behind him in Philadelphia his own wife; that these parties came, set up a home, and resided here until the morning of the 29th day of March last, when at number 526 South Division street, where they were living at that time, the defendant committed the act which deprived this woman of her life. No evidence has been given by the defendant tending to place in controversy or dispute any of the facts or any of the testimony which leads up to the proof of the facts which have been thus briefly detailed. 1680 1681

Gentlemen, the statute provides that the killing of a human being, unless it is excusable or justifiable, is murder in the first degree when committed, either from a deliberate and premeditated design to effect the death of the person killed, or of another; or by an act imminently dangerous to others, and evincing a depraved mind, regardless of human life, although without a premeditated design to effect the death of any individual; or without a design to effect death by a person engaged in the commission of, or in an attempt to commit a felony, either upon or affecting the person killed, or otherwise; or, third, when perpetrated in committing the crime of arson in the first degree. 1682

There is no suggestion that the offense committed in taking the life of this woman would fall in any other than the first degree, as defined by this part of the statute, if it falls within any one of the provisions of this section. 1683

The statute further provides that the killing of a human being, unless it is excusable or justifiable, is murder in the second degree when committed with a design to effect the death of the person killed, or of another, but without deliberation or premeditation. And further provides that such killing is manslaughter

1684 in the first degree when committed without a design to effect death, or by a person engaged in committing or attempting to commit a misdemeanor, &c.

It is probably unnecessary to call your attention to further definitions of the different degrees of homicide. It is divided into murder in the first degree, into murder in the second degree and into the different degrees of manslaughter. It is not suggested that if a crime was committed in depriving this woman of her life, 1685 that it falls within either of the degrees of manslaughter.

Now, gentlemen, the killing being conceded by the defendant; being admitted, and it not being claimed that it was justifiable or excusable in the defendant to deprive this woman of her life, your attention is directed to the questions which you are to pass upon; and the first question is, was the killing of this woman, under the circumstances detailed in the evidence, a criminal act? And, in the second place, if it was a criminal act, what crime was the defendant guilty of 1686 in depriving this woman of her life?

Upon the first proposition in the case—was it a criminal act?—your attention is directed to the testimony as to the mental condition of this man. There is evidence in the case, from which it is claimed by the defense that this man was so far alienated mentally that he was laboring under such an enfeebled condition of mind as to be irresponsible for any act which he should do. The rule of law which would govern 1687 in this or in any other criminal case, is that a person must possess sufficient mind to be able to understand the nature and quality of the act, and he must be able to understand that the act is wrong. If his mind is in such a condition, from disease or from any other cause, that he is unable to understand that the act for which he is placed upon his trial, is wrong; if he was unable to understand the nature and quality of that act, he is irresponsible, and in every such case as that it must result in a verdict of acquittal. But if he did understand the nature and quality of the act; of this killing; if he knew that it was wrong to take this woman's life, then he is responsible for some crime, which you are to determine under the testimony in the case. After passing that question, if you should come to the conclusion that he was a responsible being, capable of understanding the nature and quality of his act, and that it was wrong; that he was responsible before the law for some criminal act in depriving this woman of her life; then you proceed to examine the question, what crime he is guilty of. You will observe from the reading of the statute that this crime, murder in the first degree, must have been committed from a deliberate and premeditated design to effect the death of this person. To constitute it murder in the second degree, it must have been committed with the intent to kill but without premeditation or deliberation. To constitute it manslaughter in the first degree, it must have been committed without any intent to kill, and in the heat of passion. 1688 1689 1690

Now, gentlemen, with these suggestions as to the statutes which govern in this case, I call your attention directly to the testimony which has been given and which bears upon these questions which you are to determine.

First, however, I will call your attention to the statute which provides, that no act committed by a person while in a state of voluntary intoxication, shall be deemed less criminal by reason of his having been in such condition. But whenever the actual existence of any particular purpose, motive or intent is a necessary element to constitute a particular species or degree of crime, the jury may take into consideration the fact that the accused was intoxicated at the time, in determining the purpose, motive or intent, with which he committed the act. 1691

Gentlemen, the first witness called was William J.

1692 White, who made this map. He explained the location of this house and the location and situation of the rooms and of the different articles of furniture in the house. I call your attention now to his description of what he observed when he went to the house; your attention is called to all of this evidence for the purpose of enabling you to follow it afresh, and for the purpose of gathering from the testimony, from the acts of this defendant, so far as they are disclosed by the testimony and so far as you are able to do, the
1693 operation of this man's mind during that time for the purpose of determining, so far as you are able to do, under this testimony, what was passing in his mind; what were his motives and what were his intentions; what was actuating him to do or not to do any particular thing on that day, anything which he did do or which he omitted to do; what was prompting him to make any declaration made that day; what was prompting him to withhold an answer to any question
1694 which may have been asked him that day; what was prompting him all the way through, from the time of the commission of this act until a day or two beyond had passed. Your attention is called to this evidence for the purpose of enabling you to follow it through afresh and gather from it, so far as you are able to do in judging of men's motives by their acts, what was passing in this man's mind; what his condition was at that time.

This witness testifies that he went to this house and
1695 that he saw a trunk-tray on a chair containing ladies' wearing apparel; that there were blood stains on the stove and on the front of the right-hand corner of the hearth; the other principal blood stains were on the floor; a portion of it was dry and a portion wet; blood stains near the chair at the top of the map in room "A"; there were blood stains on the wall five feet from the floor, almost over the child's chair; there were five blood marks, caused by the hands being

placed on the wall; were finger marks; were stains on 1696
the dishes on the floor; found earthen dishes on the floor; was a table turned over, and on the end on the floor.

That was his description of the condition of things found in the room; you are to examine it for the purpose of ascertaining as far as you can what the transaction was which had just previously taken place in this room; discover the situation and position of these different articles; these different household utensils and the marks of blood about the room; for the pur- 1697
pose of determining, so far as you may be able to do and so far as it will be of service to you in passing upon the other questions in this case, as to the nature of the contest which had been waged in this room and which had ended in the death of this woman.

Dr. Charles S. Jones was the next witness called, and he states that he was in charge of the Fitch Emergency Hospital; he speaks of the woman being brought to the hospital and placed upon a table, and 1698
that he made an examination; that the face and head were covered with blood, and wounds about the head; garments were bloody, and she was unconscious; I first noticed wounds on the head, and cut away the hair and had the entire hair removed from the head found twenty-six wounds on the head; were wounds through the scalp; discovered a fracture of the skull; think on the left side, about three by two inches; found the bones were easily depressed; Dr. Park connected some of the wounds and removed seventeen 1699
pieces of the skull; were portions of the brain coming through the wounds; three or four wounds on the right hand; incised wounds; lacerated wounds; I attended her until the death, which occurred at 12.50 o'clock Saturday morning, March 30; she did not regain consciousness.

I do not expect to call your attention to the entire description of the condition of this woman immedi-

1700 ately after she received these injuries. The description given by this doctor is about the same as that given by every other witness who was called to speak upon that subject.

I call your attention now to the place in this case where this evidence may be legitimately considered.

As has been before stated, there is no controversy but what the wounds upon this woman's head produced her death. There is no controversy as to the manner in which she received those wounds; that she
1701 received them at the hands of this defendant. So far as that part of the case is concerned, all of this testimony might well be dismissed without any further consideration, but in the investigation of this entire matter you are, of course, to avail yourself of every item of evidence, which will give you any light upon the real questions which you are to determine. So that it becomes important for you to examine this evidence upon the sole question, as before alluded to, as to the nature of the contest which took place in that
1702 room, and from its connection with some other evidence to which your attention will presently be called; the nature of these wounds; the fact that there were upon this head twenty-six distinct wounds, cutting through the scalp, and that there was a place upon the head of this woman, two by three inches, where the skull was so broken that upon removing the scalp seventeen distinct portions of the skull removed. This is proper evidence for you to consider upon this
1703 question; determine what took place there; what was the character of this assault; how long was it continued? The other witnesses who were called and spoke upon this question were Dr. Park and John R. Kinney, who performed the post-mortem examination, and young Mr. Cortlett, who was in charge of the ambulance which was employed to remove this woman from the house to the hospital.

We now come, gentlemen, to a little later phase of the case and to the testimony of Asa D. King.

Mr. King states that his father lived in the next 1704
house to the one occupied by this defendant, he himself residing in the city of Boston; that he arrived in Buffalo on the morning of this day, and very soon after he arrived at his father's house, that Mrs. Reid came into the house with her children. Then King proceeds to say: "I put on my hat and went to the back side of the premises in question: I went to the second door and saw a person lying there on her arms and was swaying back and forth and covered with blood; I stepped back and closed the door; I stepped back 1705
again and opened the door and the defendant stood facing me; I said, "This is brutal, man. Let's go for a doctor." He stepped out, partly over the woman lying there and went onto South Division street and down and crossed over to the other side. I asked him to go for a doctor and he made no reply. He went into a saloon. I asked him if he was going in here. He said, "Yes." I said, "Let's go for a doctor." He said he would not, and went into the saloon and 1706
called for beer. I said, "Don't give him any beer. He has brained his wife. She is weltering in her blood." He said, "Yes, I have, and am willing to take the rope for it, and the sooner the better." He was denied beer. He stepped out upon Jefferson street. I followed him and asked him to go for a doctor. He said, "Let me get a glass of beer and I will go for a doctor." I said, "Yes," and he went in and called for something and drank it and took out a sack and paid for it, and came out, and I asked him if he 1707
would go for a doctor and he said he would not. I stepped to a druggist's and then out and made a complaint to an officer." Then he identifies O'Neil, who was the officer there; and then went for a doctor. "As I got back to 526 South Division street, I passed the officer with the defendant. I went back to the door of the house but deceased had been removed. From the time he was wiping his hands, until O'Neil had him, was about ten minutes."

1708 That is Mr. King's statement as to what took place immediately following this transaction.

Mrs. Mary Reid was called, and she is the person who occupies the front part of this house. She says that upon the morning in question she was busy in her pantry washing her dishes about eight o'clock; she then proceeds: "I heard a blow; sounded as though some one had struck; then I heard a scream; then I heard a heavy fall; then I heard a hacking, as though someone was chopping wood; heard another
1709 scream; I run out-doors and spoke to Mrs. Roberts and she replied: I went back and opened the door and called 'Mrs. Hort,' three times; no answer; I stepped back and saw Hort came out; I said, 'Mr. Hort, what is the matter?' He said, 'I have killed her.' He said, 'Yes, Mrs. Reid, I have, and I will take the rope for it.' His hands were stained with blood. I went back to my house and found Hort's little girl, and brought her to King's." Then she pro-
1710 ceeds to say that at ten o'clock she went into the Hort rooms. "The table was upset. The dishes were on the floor and the floor was all blood. I heard no noise, only someone busy around the room, before the occurrence of the first blow." Upon the cross examination, she says: "I do not think I saw him intoxicated more than twice. I think I saw him on the evening of March 28th, at about seven-thirty o'clock. He was considerably intoxicated. I first saw him in the morning of the 29th when he came out on the
1711 porch," and that is when she had the conversation with him. Again, upon cross-examination, she says: "On the night of the 28th I saw him when he drove in; he could not walk straight; he was not intoxicated when he came out of the door in the morning; he looked to be sober."

Henry H. Bingham was then called and spoke in reference to the post-mortem examination, which is unimportant in this connection.

Nellie Roberts was called; and she was an inmate 1712
of this house and a sister of Mr. King. She says: "My attention was attracted by Mrs. Reid standing at the door, and I opened the window; I heard a scream and a female voice; saw Mrs. Reid rap on the door and call 'Mrs. Hort,' and no reply; she stepped back and I heard someone try a key in the door, and Hort stepped out on the verandah; his hands were stained with blood; I heard him say he had killed her. Mrs. Reid said, 'You have not, have you?' He said: Yes he had, and was willing to give himself up. I 1713
heard Hort on the verandah and saw him with the child, and he placed the child down at Mrs. Reid's door."

John O'Neil says—and he was the officer who made the arrest—that he met him coming out of a saloon. "I told him I wanted him." He said, "I will go with you." We went out, and I asked him if he had been whipping his wife. He said he had. I asked him what he hit her with. He said with a hatchet. I 1714
asked him what for. He said that was to be found out. He told me where he lived and I went there and found the woman covered with blood, lying on the floor. I told him he had made a good job of it, and he said he guessed he had." He further says that "he was sober on the morning of arrest, I should judge." On the cross-examination, he says: "I saw defendant occasionally since July last. I never saw him under the influence of liquor except once, in July, and then he was able to take care of himself;" and upon the re- 1715
direct he says: "I saw him frequently after July."

Dr. Delavan E. Blackman was called, and he speaks of going to this house, upon the call of some person; he does not remember who; and he tells what he found there. He says he "found a hatchet. It was covered up or rolled up in a cloth when it was found. There was blood upon it. This is the hatchet;" and he identifies the hatchet which is produced here, by a

1716 mark, which he says he put upon it. He says: "There was then more blood upon it than appears to be now. I saw the defendant when he came there with O'Neil. He appeared to be sober enough." Upon the cross-examination he says: "I looked defendant over but he did not appear to have been drinking. He did not say anything or pay particular attention to what we were doing."

Robert Kinney, who was a policeman at No. 2. station, says that he "found this hatchet at the house,
1717 near the upper blood-spot marked on the map, near the bed room door; was what looked like a towel lying partly over the hatchet; was a little blood on the towel; I left that there; there was blood on the hatchet."

Hugh McKenna says he had known this defendant for about four months before the 20th of March. He says: "I was in Martin's saloon on the 29th of March, in the morning, and I saw defendant there about eight
1718 o'clock. He asked for beer, and King said not to give him beer, and said his wife was home on the floor after his whipping her. Defendant said, 'I have done it and am willing to take the rope.' Never saw the defendant intoxicated; saw him a little under the weather; he used to drink a glass of wine."

Then De Bella was called, and he says that he lived with the defendant on the 29th of March, the time of this occurrence; he says that on that morning he got up at ten or twelve minutes after seven; the defen-
1719 dant was not up; that deceased was up, fixing the fire. "I went out. The defendant came out about fifteen minutes after I did. He asked how much money he counted the night before. I told him thirteen dollars; he said he had counted it that morning and it was fourteen dollars." And in this answer it was thirteen dollars and some cents, and fourteen dollars and some cents; I did not get the exact number of pennies, as stated by the witness. "He went to

cleaning a horse; I left the defendant and went into 1720
the wagon to transfer eggs and did not see the defendant; I did not notice where the defendant went; defendant told Dennis when he came: 'I guess you had better water the black horse.' I said I watered him. I next saw the defendant with a policeman. I heard a noise like something falling. Dennis called my attention to something when I had been in the wagon half an hour; deceased came out about half an hour after I came out; she said she wanted some
eggs; defendant went out of the barn; I heard con- 1721
versation between defendant and deceased about going back to Philadelphia, about three or four days before the 29th of March; she said to him that she was not going to live with a drunken man like him, she was going to Philadelphia. About a week before the 29th, defendant said to me, 'Women are——' using a profane expression: 'she wanted me to go to Philadelphia and when I want to go, she does not;' about ten days before the killing, heard defendant, deceased, talking
all night long; the next morning, defendant said to 1722
me: 'I guess you did not sleep much last night,' and defendant said what I have stated, that is, what she would not live with him, etc." Then, upon the cross-examination, speaking of the evening before, he says: "We got home on the 28th of March, about 8.30 P. M.; the defendant was full: did not walk straight; he could hardly take a bird cage; he went in and brought out a light; he had been drinking
that day; some days he did not drink any; some 1723
days the defendant would keep sober and some days he would be so drunk we had to lift him into the wagon."

Dennis McMahon, one of the boys who worked there, who is sixteen years of age, says that upon the occasion in question he got there about seven o'clock in the morning; that the defendant told him to water the horse; that "I went into the house after I finished

1724 cleaning the horse, and she sent me for cakes and bread; defendant was in the barn; after I came back, I saw defendant fixing the hinge to the barn door; the deceased came to the door and asked for eggs; defendant filled a little basket and I gave them to her; defendant went into the house and De Bella went to change the eggs in the wagon; I sat there; about twenty minutes after, heard a noise from the house and thought the dishes fell; De Bella went into the house
1725 for a match and came back; I looked in and saw the woman lying on the floor with her head near the stove."

Thomas McMahon was a brother of this last witness, and fifteen years old. He says he was at work there on the occasion in question; that he saw the defendant going from the barn to the house; "I stood at the barn door; Dennis was there; five or ten minutes after defendant went into the house, I heard sound of dishes breaking; I did not hear anything else; I ran around to the side door and saw defendant come out with his hands bloody; I asked him if he was going to load up
1726 stuff that morning, and he said no; he was wiping his hands with a handkerchief; I looked in at the window and saw the deceased lying on the floor, in blood; I went down to Martin's saloon and he told me to go for a policeman." That is, when he got to Martin's saloon this defendant told him to go for a policeman. Heard the defendant say in the saloon "I want a rope; the sooner the better;" after the dishes fell I heard the defendant say "I want to open my trunk."

1727 Daniel E. Barry was called; and he is captain of Number Two Police Station; he says he recollects the morning of the 29th of March; at 9.15, when he came to the station, defendant was there, locked up in a cell; "I went in and talked with him; he was sober; he was sitting; and I called him and asked him if he wanted to make a statement; he said no, he did not want no fuss about it; said he did it; he was willing to take the rope for it; did not want any trial or fuss about it; I had, and showed to him, this photograph; 1728 (the photograph which he produced here); asked him if that was his wife; he said no; and I asked him who it was; he said it was Tillie Ziegler, of Philadelphia. He went on and made his statement at the office, and Kehoe took it down and I read it to him twice, and he said it was correct; after this statement was made, I went to the jail and saw the defendant there and had a conversation. I asked him if he would tell me why he did this; he said it was because of jealousy of Yellow, and a bad temper; that he went in with a hatchet 1729 in his hand and hit her, without saying a word." On the cross-examination, he says "I gave defendant a glass of brandy before he made his statement; just a small quantity; it was quite a while before the statement was made." This statement has been read to you by the District Attorney, and it is unnecessary for the Court to take your time to repeat that statement. It is sufficient to say that it purports to relate in detail the circumstances connected with the taking of 1730 this woman's life. It commences back and details the relations which had existed between this man and woman before they left Philadelphia. It relates the time they left Philadelphia, and their movements after they reached the City of Buffalo; where they lived from time to time; and something is said about the controversies, if such they may be called, which were going on between these parties during that period of time. It purports further to give the minute details of the manner in which this woman was deprived of her life; of the agency of this defendant in it, and his purpose in doing the act. 1731

That, substantially, closed the testimony of the people, on the part of the prosecution, up to the time when they rested their case.

The defendant then having the case, called Charles S. Spang, who was a party in the employ of this defendant at time of this affair. He was driving a wagon

1732 engaged in this huckster business, and was, a portion
of his time, in company with the defendant; a portion
of the time he was away, having a boy to assist him,
and prosecuting his business in a sort of an independent
way; and he states that he has known the defendant
since last season; that he saw him about every
day; was in his employ on the 29th day of March
last; that the defendant was a very hard drinking
man; for the time he worked for him it was one continual
drunk. He says, "We blew everything in and
1733 didn't have a cent. Before night we would be pretty
well filled up; intoxicated; we spent four or five dollars
per day for drink. After I went back to work in
two or three days he started to drinking again. The
night before the murder I went with the defendant to
De Bella, and with defendant and De Bella to a saloon
on the Terrace; got there in the afternoon about two
o'clock, and we got to drinking whiskey, beer and
cider, and remained there until five or six o'clock.
1734 Saw the defendant the next morning in Martin's saloon.
He was pale as a ghost and trembling. This
was about eight o'clock. And I talked to him; his
eye was the same as two weeks before; wild expression;
had been so two weeks before; he was drinking;
had during the two weeks; mornings he was quiet."
On cross-examination he says: "I have been drinking
hard since I have been here. I am 34 years old
and have drank since I was fourteen years old. I was
drunk about every day for the two months I worked
1735 with the defendant; the morning of the murder his
eyes looked fierce, not glassy; looked strange, not
natural; kind of vacant stare; saw him look wild two
or three times previous to murder; first time, about a
week before; he sat on a barrel in the barn in the
morning."

Henry Kemmler, brother of the defendant, who is a
resident of Philadelphia, was called, and he says that
the defendant left Philadelphia in November, 1887;

that at the time he left there he resided in the same 1736
house with him, and that he was drunk four months every day before he left Philadelphia. "His conduct impressed me as unreasonable, and his conversation the same. I was at defendant's house for two weeks before Christmas. He was drunk the night we came there. During the two weeks I was here defendant seemed to act right enough, as far as I could see." Then he speaks of the relations between the defendant and this Ziegler woman, and as to the fact of defendant's marriage to another woman before he left Phila- 1737
delphia.

Thomas M. Carpenter was called, and he says the defendant was a hard drinker; that he drank at his house about Christmas; that he drank a quart of whiskey; that he saw the defendant every day for a week, and sometimes would not see him for a week; that he has seen him intoxicated; that he has taken him home two or three times stupid drunk. "I remained with him in a saloon all the afternoon until 1738
about half-past five o'clock; we were drinking beer; I left him there drunk; made bet with him, and we went on a drunk for a couple of days; have been into the defendant's perhaps a dozen times when he has been drinking, or a little off." On cross-examination he says: "I have been a drinking man for nine or ten years; cannot tell how many times I have been drunk; I attend what business I have and then if I want to I get intoxicated."

Thomas Martin was the keeper of this saloon; and 1739
he says that defendant came to this saloon about twice a month; sometimes remained a couple of hours in the evening. "He would lean on his knees and seem to be thinking, when he had been drinking; sit about as he does now quite a little while; four or five hours; would not say anything unless spoken to, and then might answer without raising his head; I saw him in this way six or seven times. He came into my place

1740 at eight and one-half o'clock March 29th, and King came in after him. I looked at the defendant and he asked for beer. I looked at defendant's eyes and they looked different; looked wild like; after I told him he could not have beer he walked out; when he sat in this way he had been drinking and I attributed it to his being sleepy; I did not notice anything in defendant's appearance until after King spoke to me and said he had brained his wife; I then thought he looked a little wild. He said, 'I did do it and am
1741 willing to take the rope.'

James Maroney says that he has seen the defendant a little intoxicated; he cannot say how many times; "every time I saw him he had been drinking more or less;" he is the saloon-keeper; "the last time he was there," that is at his place, he says, "was five or six months ago; he could walk and talk; I did not see him do anything except call for drinks."

Dede Joy is a huckster. He says that he has seen the defendant; "sometimes every day and sometimes
1742 not for a week; seen him drink, on many occasions, and have seen him intoxicated; have seen him drunk so many times that I can not state the number of times; probably two or three times a week, although I would not swear to that; have seen him sit with his head down, at the market, five to eight minutes; he used to be on a drunk every week or so; should say his conduct was unreasonable." On cross-examination he says: "When I saw him drink, he either drank
1743 with me or I drank with him; the last time I saw him intoxicated was about a month before the 29th of March. To the best of my recollection I have seen him intoxicated fifty times, more or less. Cannot tell whether it was more or less."

George Meyer says that he knew the defendant for about a year; that he went by the name of "Sandy;" that "he fished one winter, 1887 or 1888, and I saw him four or five times that winter; passed by him; saw him once in Gallagher's saloon and then he was intoxicated; he walked pretty straight; staggered once in a while; he ran his horse into the fence and he said 'Wait until you see the horse jump the fence;' his conduct impressed me as pretty fair." 1744

Paul Marshall, who is a huckster, says he has seen this man intoxicated a few times and been with him; first, about a year ago; "we started drinking at five o'clock and drank all night; defendant was drunk when we started in; have been with him since, several times, on a spree; sometimes two or three days; sometimes a week at a time; he drank beer and whiskey; noticed nothing peculiar with defendant only when he was full; when he was full he talked as folks would; have seen defendant drunk thirty or forty times; saw defendant intoxicated Sunday before March 29th; I get drunk every other day; I spend all the money I can get for liquor;" and this same witness testified, I think, he had had about four drinks that morning before he gave his evidence. 1745

Eugene Gallagher, for the defendant, says he keeps a saloon, and that he holds an office under this city government, in the Elk Street Market. That he has seen this defendant intoxicated four times; first on the outside of his door, in his wagon: second, at my house, about a week after the first time; the third time, on the market, in February last; fourth time, on the market. Both times he was at my house, he rolled on the ground. The first time he got drunk at my house; I bought his tackle; said he would as soon burn it; I sent some boys home with him; I gave him eight or ten dollars for it; he was offered thirteen dollars for it; it was probably worth thirty-five dollars. The second occasion when he was at my house he was rolling drunk, in the evening, and came alone. I could not get him home; wanted to fight. The third time, on the market; I run away from him; the fourth time, at the market; he was selling chickens and was not 1746 1747

1748 very drunk; his conduct on these four occasions was unreasonable. And this witness further testified; this city official; that he held a license and that he furnished the liquor to this man to make him so drunk that he rolled upon the ground, to use his expression, and stood upon his head, and that while he was in that condition, he gave him ten dollars for thirty-five dollars' worth of his property, and then ends up his statement by saying that he swears that he was drunk.

1749 Michael O'Laughlin says that he is fourteen years old, "and that he worked for the defendant peddling; that he quit the Monday before the killing; that defendant used to get drunk three, four or five times a week; I knew he was drunk because he staggered."

Dennis McMahon was recalled by the defendant. He said he worked for the defendant five months; that he saw him drink about forty times in a saloon; saw him drunk so he staggered, about ten or eleven times.

Martin Shea was called. He says he is a laborer; that he knows this defendant; has for a year; that he 1750 saw him intoxicated; the first time on the Island, in the spring of 1888; second time, in his own house on Elk street, same spring of 1888; "in all, saw him five or six times; saw him intoxicated on the Market more than once; four or five times, as near as I can guess: last time was early this spring; last time was four or five weeks before the killing."

Jacob Burkhardt says he is a barber; that this man came to his house to be shaved, as often as once in two 1751 weeks, and part of the time every week; that he shaved him; and that he never saw him intoxicated.

That concluded the testimony of the defendant, and the people recalled Mary Reid, who says that she saw the defendant nearly every morning and nearly every evening; "I only saw him intoxicated twice; he lived there from October 17th, 1888." Upon cross-examination she says that he was intoxicated the night before the killing.

William B. Reilly was called then by the people, 1752
and he is a dealer upon Elk Street Market; Melvin Carpenter, also a dealer upon Elk Street Market; William C. Townsend, the same; Charles O. Rogers, Albert E. Makely and John H. Gail, were each of them engaged in selling produce upon the market; and each one of them testified, in substance, that this defendant was a customer of theirs, during the time since he has been here; they give the dates of the transactions between them; some of them very recent; some of them
the day before the death of this woman; and they give 1753
you their impressions of this man; they say that he was a close buyer; that he examined the goods which were the subject of his purchases, with great care; that he never made any foolish offers for goods; that he carried his own money; made his purchases and made his payments as he went along, and that they never saw anything in reference to this man, out of the ordinary, save upon such occasions as they saw him when
he was intoxicated; and they relate how much they 1754
saw of that. You will probably remember what there was of that, gentlemen, without my calling your attention to the evidence of each one of these witnesses in detail.

Then this morning John Kehoe was called by the defendant; and he was a huckster and knew this defendant; he gave testimony to the effect that he had seen this man intoxicated; that he could not tell how many times: that he had seen him intoxicated at
Martin's, after Christmas; he sat there drunk all day; 1755
that he spent fourteen or fifteen dollars, he thinks; that upon another occasion, at Olympic theatre, he saw him when he was intoxicated, and that he had seen him in other saloons drinking. His conduct, he says, impressed him as irrational. Upon the cross-examination he says: "I mean he was drunk and acted foolishly. I get drunk every time I can, or want to. When I am drunk, I act irrationally, and so does

1756 every other man. I have been drunk hundreds of times and could produce a thousand men who have seen me drunk."

John Burkhardt was called, and he said he used to be a huckster, and that he knew this defendant; that he had seen him intoxicated more or less, from time to time; never saw him when he had not been drinking; have drank with him; first saw him intoxicated at the market; saw him on Monday before the killing; he acted like a man under the influence of liquor;
1757 did not know what he was doing; saw him later in the week, when he was driving his wagon; he was irrational. Cross-examined, he says: "I have drank since I was sixteen years old."

Kemmler was re-called and states the fact that his mother died thirteen years ago, of consumption, and that his father used to become intoxicated, since his recollection, about once a week. Then he says that he had an interview with the defendant at the jail. He
1758 says: "I asked him, the defendant, why he committed this act, and he said he did it because he was jealous of De Bella, or of Yellow."

Gentlemen, that covers the testimony in the case, save the testimony of the doctors who have been called by the people, and the defendant, except Asa D. King. He was re-called and he says, during all the time that he was in the view of the defendant, that he discovered nothing like intoxication, or anything different from any other man.

1759 Dr. Crothers was called by the defendant, and he says that "as a rule, a man who uses alcohol, has a defective brain; it destroys his veracity and power to distinguish right from wrong; does not affect the physical system in as marked a degree; it breaks up the will power and destroys it;" he says, "the consumption of a mother would give defective brain to offspring; closely related to drinking habit; consumptive parents have inebriate children; that gener-

ally a man who drinks for eight to ten years would 1760
not have normal brain or act rationally." Then a hypothetical question was put to him, embracing the several matters proved in this case, or claimed by the defense to be proved in this case, and the answer to that question was: "In all probability such a man would be incapable of discriminating as to quality of his acts." Then he goes on to say that a man in this condition would have delusions of infidelity of wife; of fear; of poisoning, etc.: that they are indications
of alcoholic insanity. That he saw defendant this 1761
morning; that he made a general examination of him; talked with him; that he is of weak intellect and imperfect brain; that he saw and observed the dilated pupil and the general appearance of a man more or less defective. He says, upon the cross-examination: "I do not say that the defendant is insane. I discovered no hallucination or delusion in the case of the defendant. One drunk may destroy the power of a
man to distinguish right from wrong for sometime 1762
after that." Then, in a question by the District Attorney, was detailed to this witness what it was claimed this defendant did, at about the time of this killing; and he was asked the question, assuming those facts to be true, as to the mental condition of the defendant at that time, and his answer was: "He may or may not have been capable of understanding right from wrong. No man could determine about that." Then, upon his re-direct examination he says: "A man would not likely be able to premeditate and
deliberate after being in the condition stated." And 1763
the condition stated in the question was concerning the claimed, proved condition of this man as to his habits of intoxication.

On the part of the people Doctors Phelps and Slacer were called, and upon the same class of questions, detailing to them what it was claimed by the people to have been proved as to the movements of this de-

1764 fendant at about the time of this killing; both of them gave the opinion that this man was, at that time, in a condition mentally where he did know and understand the quality of the act which he committed, and that he did know and understand that that act was wrong. That question embodied some facts as to the statements made by this man at about the time when this killing was committed. And the doctors state, in that connection, that after this man left his house, when he stated to these persons who have been called
1765 as witnesses, that he had killed this woman and that he was ready for the rope, and the sooner he had it the better, that that indicated to them that this man understood that he had committed an act which was within the condemnation of the law, and which had exposed him to death by hanging for having committed it; and they say that that indicates it to such an extent that they are able to say, in their opinion, that he did understand the nature of the act which he
1766 had committed, and he did understand that it was wrong.

Gentlemen, your attention has been called to this testimony, at length, for the purpose indicated at first, of bringing it all before your minds freshly, so that you may consider it and apply it to the questions which you are to determine.

And now to re-state the questions which you are to dispose of:

In the first place, you are to determine from this
1767 evidence whether there was any criminal liability in the act of killing this woman by this defendant; whether there was criminal liability for that act. And for the purpose of determining that question you have simply to examine all the evidence in this case and determine whether he was in such a condition of mind as that he knew the nature and quality of the act which he was doing; whether he knew that he was depriving this woman of her life by the use of this

implement upon her head; and, if he knew that, 1768
whether he knew that it was wrong for him to deprive
this woman of her life. If he did know and understand the nature and quality of the act which he was
committing; and if he did know that that act was
wrong, then he was responsible for that act, and there
is criminal liability in the case. But if he was so far
alienated in his mind; if his intellect was so far enfeebled from disease, or any other cause, as that he
did not know the nature or quality of the act which
he was engaged in, and that he did not know that it 1769
was wrong to deprive this woman of her life, then he
is entirely excused for the act in question and must be
acquitted. If he did know that it was wrong, if he
understood the nature and quality of the act, then you
proceed to examine another question, and that is:
what crime was committed in depriving this woman
of her life?

Gentlemen, you are to determine, upon this branch
of the case, first, whether there was deliberation and
premeditation; whether the act was deliberate and 1770
premeditated. If this defendant was of sufficient mind
to be criminally responsible, under the definition as it
has been given to you by the court; if then he deliberately, from a premeditated design to effect the death
of this woman, committed this assault and deprived
her of her life, it would be murder in the first degree.
There must be not only an intention to kill, but there
must also be a deliberate and premeditated design to
kill. Such a design must precede the killing by some 1771
appreciable space of time. But the time need not be
long. It must be sufficient for some reflection or consideration upon the matter; for choice to kill or not
to kill, and for the formation of a definite purpose to
kill. The human mind acts with celerity which it is
sometimes impossible to measure. Whether a deliberate and premeditated design to kill was formed, must
be determined from all the circumstances of the case.

1772 Upon this question of premeditation and deliberation, which concerns the degree of guilt which attaches to this man, if he is guilty of any crime, you are to consider his condition that morning; whether he was intoxicated; if he was intoxicated at that time, as you have already been instructed, you have the right and it is your duty to consider his intoxicated condition as bearing upon the question of deliberation and premeditation which proceeded the act of killing. If he was not intoxicated upon that occasion you have the
1773 right, in determining this question of deliberation and premeditation, to examine into and take into account the general condition of this man's mind, for the purpose of determining from all these acts and all these statements, and everything which has taken place and to which your attention has been called, either by the counsel or by the court, for the purpose of determining whether there is evidence which the people have given in this case; whether there are any circumstances brought to your attention which satisfy you,
1774 beyond a reasonable doubt, that this man, for some appreciable time before he struck the blow or blows which deprived this woman of her life, deliberated and premeditated the act, and from a deliberate and premeditated design deprived that woman of her life. If he did; if such is the fact; then, if he is criminally liable he would be guilty of murder in the first degree. If he did not, from a deliberate and premeditated design to effect her death, strike this blow, but
1775 did intend to kill the woman, intended to commit the act, then he would be guilty of murder in the second degree. If there was no intention to kill; if the blow was struck in the heat of passion, then it would be manslaughter in the first degree.

Now, gentleman, the court can be of no particular service to you beyond this point. Your attention has been called to the testimony which bears upon these questions which you are to decide. The testimony has been given in a very elaborate way upon both 1776 sides, both by the people and the defendant; so that you know, substantially, what there has been in this man's life for a time covering about a year and a half. You understand the relation which existed between him and this woman; you have been advised as to the act which was committed by this defendant, in such detail that you can almost regard yourselves as eye witnesses of the transaction; you have been advised as to the conduct of the defendant so closely after the commission of the act, and down to a time 1777 later than that, of his making the written statement which has been read to you, that you can almost regard yourselves as having been in his company and observed his conduct during that period of time. And from this evidence you are to determine these questions:

First, whether this man had mind enough to understand the nature and quality of his act and to know that it was wrong. If he did, then he is liable. And next, whether he committed this act with the deliber- 1778 ate and premeditated design to effect the death of this woman, within the definition of that act as given to you by the court. If he did, he was guilty of murder in the first degree. If he did not, but with the intent to kill without any deliberation and premeditation, he would be guilty of murder in the second degree.

Gentlemen, upon all these matters which have been submitted to you, you are the sole judges of the questions of fact. The court has called your attention to 1779 this evidence, not for the purpose of indicating to you any opinion as to how any question which is submitted to you should be decided. That is altogether your province, to dispose of every question of fact in this case. You are charged with that duty. You are to take the law from the court, and you are to determine the facts from the evidence. The people, the District Attorney representing the people, is required

1780 to satisfy you upon these matters, these facts, which you are called upon to find beyond a reasonable doubt. You are to examine all this testimony. You are to weigh it all—every word of testimony in this case which bears upon it in any respect, whether your attention has been called to it by the court or by the counsel or otherwise. You are to examine all of it, and then if, when you have examined this testimony carefully and candidly, you find your minds in such a
1781 condition as, upon any question here to be decided by you, that you are obliged to say: I am not satisfied; I do not know what the fact is; I am in doubt about it—then there is a reasonable doubt and the defendant is entitled to the benefit of that doubt. You are to find from this evidence, from the evidence itself, to your satisfaction, beyond such a doubt, upon these different questions which are given you in charge.

Gentlemen, you have listened to this case patiently, for a long time. It has been, as before stated, elaborately presented by counsel. The Court has gone
1782 over the testimony again, largely in detail, for the purpose of refreshing your minds. You will take this case and examine it with the same care which you have given to the trial. You will, of course, acknowledge and understand the responsibility resting upon you, which will be indicated by your verdict; recognize the fact that it is an important case; important to this defendant; more important to him than any other case which could be presented, for none could be
1783 presented which would concern more than his life; important to the people, who are presenting this case; important to community, because, for the protection of community the criminal law is instituted and must be executed; important in every event. You have been selected and placed upon this jury because you are supposed to be entirely free from any bias; from any notion as to the disposition which ought to be made of this case, and, under your oaths, you are

simply to decide it according to the law and to the 1784
evidence. You are to deliberate upon it carefully; when you reach a conclusion, you are to voice that by your verdict, deliberately and fearlessly, because with the consequences of this trial, neither this Court nor the jury, nor the counsel engaged here, have anything whatever to do. The consequences must take care of themselves. It is for you simply to declare the fact in this case, under your oaths.

Mr. Sickmon: I ask the Court to charge that the 1785
defendant, in order to be convicted of murder in the first degree, must not only have formed the design to kill, but must have premeditated and deliberated upon that design.

The Court: I have so charged.

Mr. Sickmon: I ask the Court to charge that in fixing the grade of crime of which the defendant is charged, the evidence as to his intoxication becomes 1786
very important and must be carefully weighed.

The Court: All the evidence in the case, gentlemen, is to be carefully weighed, but it is not the province of the Court to tell you what is important or otherwise. You are to determine the importance of the testimony.

Mr. Sickmon: I except to the refusal of the Court to charge as requested.

1787

Mr. Quinby: Just one request, if Your Honor please: in determining the question of deliberation and premeditation, the jury may consider, as bearing upon this subject, the fact that a dangerous weapon was used; that the wounds inflicted were several in number, and upon a vital part.

The Court: They are to consider every circumstance in the case, as I have already instructed them.

1788 The jury then retired, in charge of sworn officers.

Recess until 10 o'clock P. M.

Adjourned until 9.30 A. M.

Proceedings, Friday morning, May 10, 1889.

Present: The District Attorney, counsel for the defendant, and the defendant in person.

1789 The jury return into Court.

The Clerk called the jury.

The Clerk: Gentlemen of the jury, have you agreed on your verdict?

The Foreman: No, sir, we have not.

The Court: Gentlemen, are you differing upon any
1790 question upon which the Court can be of service to you?

The Foreman: Yes, sir, we are.

The Court: Do you desire any instructions?

The Foreman: Yes, sir, we do.

The Court: On what subject?

The Foreman: The jury would like to be instruc-
1791 ted in regard to the doctors' evidence, in regard to the boys' testimony, on the morning of the tragedy, and in regard to the first and second degree?

The Court: I did not quite understand your first suggestion?

The Foreman: The jury would like to be instructed in regard to the doctors' evidence and to the boys'; the evidence of the boys on the morning of the killing.

The testimony of Dennis McMahon, Thomas McMahon, witness De Bella, Dr. Crothers, Dr. Phelps and Dr. Slacer was read by the Court and the Stenographer. 1792

The Court: Now, gentlemen, upon this question of mental capacity, you have two classes of evidence to examine. You have, first, the evidence which has been given as to the conduct of this man, both before and at the time and succeeding the act which deprived this woman of her life. Then you have the evidence of the doctors, who have been called and have given 1793 their opinions, based upon their knowledge of the effect of alcoholic stimulants upon the brain. Both of these items of evidence are to be examined by you, and one is as potent as the other, in aiding you to reach a determination upon this question. You are not, in the examination of a question of this character, to ignore all your experience and observation, but you are to bring to your aid your own observation, your own experience, as to how men act, for the purpose of 1794 enabling you to understand this evidence and to apply it to the case in hand. If the fact is that after the commission of this act this man left his house, went out of the door, met Mrs. Reid and told her "I have killed her," Mrs. Reid says "Oh, no, you have not," "Yes, I have killed her, and I am ready for the rope," then he started off to get a drink, this man King followed him up and asked him to go for a doctor and he refused to go for a doctor, King preventing his getting a drink at the first saloon he went into, and then 1795 he said to King "If you let me get a drink, then I will go for a doctor," and after he had procured his drink, then refused to go for a doctor, saying that he had killed this woman, that he was ready for the rope, the sooner he had it the better; made use of all these expressions; and so on down through, including the confession which he made and which is before you—you are to consider all that evidence for the purpose

1796 of determining what the condition of this man's mind was at the time he committed this act, and for the purpose of determining whether he then had sufficient mind to understand the nature and quality of his act and to know that it was wrong to take this woman's life. If he was in that condition, he was responsible. And, of course, you are to examine the evidence of these doctors upon this same question; get from it all the light you can, as bearing upon the question of
1797 this man's mental condition.

Gentlemen, it is not necessary that a man should possess the highest order of intelligence to be amenable to the criminal law, or to be guilty of a crime. It is only necessary that he should have enough intelligence to understand the nature and quality of his act, and to know that he is doing wrong. If he kills, to know that it is wrong to kill, and if he kills, to know that he is killing.

And the evidence which has been given as to this man's habits, his continuous use of liquor, has been
1798 given, and it has been argued from that that this man's mental condition has been so far impaired by the use of liquor, that he has ceased to be a person who is capable of understanding the nature or quality of such an act, or of understanding the fact that such an act was wrong. Now, if he has been, as you have before been instructed, from disease or from the use of alcohol, or from any other cause, reduced to such a mental condition as that he was incapable of under-
1799 standing the nature and quality of his act, and that he did not know that it was wrong to kill this woman, he is not responsible. But, if he had mind enough left to comprehend the nature of the act and the quality of it, and to know that it was wrong to do it, then he is responsible, notwithstanding he has been the victim of the alcoholic habit.

Upon the other question I can only repeat to you the instructions which you received yesterday; and

that is, that there must be not only an intention to 1800
kill, but there must also be a deliberate and premeditated design to kill. Such design must precede the killing by some appreciable space of time, but the time need not be long. It must be sufficient for some reflection or consideration upon the matter, for choice to kill or not to kill, and for the formation of a definite purpose to kill. The human mind acts with celerity which it is sometimes impossible to measure, and whether a deliberate and premeditated design to
kill was formed, must be determined from all the cir- 1801
cumstances of the case. The law requires that there shall be some reflection and some thought that precedes the act. If there is thought; if there is reflection on the act; if there is a choice and a determination, as the result of those mental actions, then there is a sufficient deliberation and premeditation within the law. In this case you will refresh your minds by the testimony of Mrs. Reid. She says that she was
engaged in the room adjoining where this act was 1802
committed in washing her dishes; that everything was passing along in the adjoining room, so far as she could hear anything of it, in the ordinary way, as though a person was engaged in getting a meal; that all at once she heard this blow and this scream. That is the situation as to what took place there, according to the testimony of Mrs. Reid. And if that is a truthful description of that circumstance it may aid you somewhat upon the questions which you have to de-
termine. It is entirely unimportant whether this man 1803
determined to take the life of this woman the week before this transaction or not; whether he determined while he was at the barn to do it or not; or whether he determined after he got into the house to do it. If he determined, within the definition of deliberation and premeditation, as has been given to you by the court; if he thought of it long enough, anywhere; in the house or out of the house; to form the deliberate

1804 and premeditated intention and design to take this woman's life, and was responsible, he is guilty of murder in the first degree. If there was no such premeditation as that, no deliberation, but the act was with intent to kill, then it would be murder in the second degree.

Mr. Sickmon: I ask the court to charge that the defendant might have been in a condition to know and understand the nature and quality of his acts, and
1805 still it does not necessarily follow that, if he was in that condition, it is murder in the first degree.

The Court: I have already charged that.

Mr. Sickmon: I ask the court to charge that a person must not only know that an act is unlawful and morally wrong, but he must have reason sufficient to apply such knowledge and to be controlled by it.

The Court: Yes.

1806

The Court: Is there anything further, gentlemen?

The Foreman: I think not, if the court please.

The Court: Well, gentlemen, you may retire.

The jury return again into court at 11.18 o'clock A. M., and say they find the defendant guilty of murder in the first degree, as charged in the indictment.

1807

Day of sentence fixed as Tuesday, May 14th, at 9.30 o'clock A. M.

Proceedings May 14, 1889, 9.30 A. M.

Sentence being moved by the District-Attorney the defendant was sentenced as follows: That for the crime of murder, whereof you stand convicted, within

the week commencing on Monday, the 24th day of 1808
June, one thousand eight hundred and eighty-nine, within the walls of Auburn State Prison, or within the yard or enclosure adjoining thereto, you suffer the punishment of death, to be inflicted by the application of electricity, as provided by the Code of Criminal Procedure of the State of New York, and that in the meantime you be removed to, and until the infliction of said punishment you be kept in solitary confinement in said Auburn State Prison, and may God have
mercy on your soul. 1809

Mr. Hatch: If the court please I wish to take an exception to the sentence, upon the ground that it is cruel and unusual.

The Court: Yes.

STATE OF NEW YORK,
ERIE COUNTY CLERK'S OFFICE. } ss.

I, Charles A. Orr, Clerk of said County, do hereby certify, that I have compared the annexed copy of judgment roll notice of appeal and stenographer's minutes and copy endorsements thereon, with the originals and their endorsements, entered and on file in this office; and find the same to be true transcripts of and from the said originals, and the whole of each thereof.

In witness whereof, I have hereto set
[L. S.] my hand and affixed the seal of said
County, at Buffalo, this 1st day
of July 1889.

C A Orr

Clerk.

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Court of Appeals.

THE PEOPLE OF THE STATE OF NEW YORK *Respondent,*

AGAINST

WILLIAM KEMMLER OTHERWISE CALLED JOHN HORT. *Appellant.*

Appellant's Points.

STATEMENT OF CASE.

The defendant was indicted at the April Term of the Court of Oyer and Terminer of Erie County in the year 1889 for Murder in the first degree, for killing one Matilda Ziegler, at the City of Buffalo, on the 29th day of March, 1889. That the defendant was afterwards and in the following May tried upon said Indictment and a verdict was rendered upon said trial convicting the defendant of murder in the first degree, and the Court pronounced sentence of death to be inflicted by the application of electricity, as provided by the Code of Criminal Procedure, within the walls of Auburn State Prison.

The main defense on the trial was that the defendant was to a certain extent not responsible for his acts, and in support of that defense numerous witnesses were sworn showing the habits of the defendant in relation to the use of alcoholic drinks and the effects of that use upon the defendant.

From the above conviction the defendant appealed to this Court.

I.

The Court erred in permitting the District Attorney to prove by the witness Mary Reid (folios 246 to 249 of of case), under the objection of the defendant, that the defendant and dead woman Matilda Ziegler quarreled a great deal and did not live happily together. It had a tendency to influence the Jury upon their decision upon the grade of crime, as to whether it constituted murder in the first or second degree.

II.

The Court erred in permitting the witness De Bella to testify to the conversation between defendant and the dead woman, (at folio 260 of case, and the following folio under defendant's objection and exception). And also in permitting that witness to testify (at folio 464 of case), that defendant stated to witness about a week before the killing, in relation to the deceased, " She wants " wants me to go to Philadelphia, and when I want to go " she don't want to go."

"That is what he says, 'Women a' hell,' he says, "' she wanted to go to Philadelphia. When I want to " she don't want to go,' and he says that is the way " it is."

It did not show any motive for the crime, but had a tendency to mislead the Jury.

III.

The Court erred in permitting the witnesses Phelps and Slacer, physicians, called on behalf of the People to testify as to the mental condition of the defendant. They both testify that they made an examination of the defendant at the Police Station, both physical and mental. That the defendant answered all questions up to a certain point. That they informed defendant that they were physicians and surgeons sent there by the District Attorney to make a mental and physical examination of defendant. (Testimony of Dr. Phelps, folio 1601 of case, and following, Dr. Slacer's testimony, folio 1644 of case). Beginning at folio 1667 of case, Dr. Slacer testified that his opinion and judgment of the defendant's sanity and responsibility for his acts was founded in part upon the examination which he and Dr. Phelps made of the defendant at Police Headquarters on the 29th and 30th of March, when the defendant was a prisoner there.

The defendant fairly raised the objection to the admission of that evidence, as to that of Dr. Slacer, at folios 1645 and 1646 of case, and to that of Dr. Phelps, at folios 1605 and 1606 of the case.

Such testimony comes within the case of *The People vs. Stout, reported in* 3 *Parker's Criminal Reports, at page* 670, and cited with approval by this Court in *Eddington vs. Mutual Life Insurance Company*, 67 *New York, at page* 197. Either the relation of physician and patient existed between the defendant and those witnesses, or else the defendant was compelled to furnish evidence against himself. He was a prisoner in close confinement, charged with the gravest possible crime.

In the case of *The People vs. Stout* the physicians were sent to examine the defendant by the Coroner, and so informed the defendant, but because one of the physicians was allowed to describe the defendant's condition the conviction was reversed. We claim that for the same reason this conviction should be reversed.

IV.

The defense in this action rested upon the mental condition of the defendant, and the defendant was entitled to have that defense submitted to the Jury fairly so that it might receive at their hands full and careful consideration in fixing by them the grade of defendant's crime.

And defendant claims that in that particular the ruling of the trial Judge was erroneous, and that the rights of the defendant were thereby prejudiced.

At folio 1785 of the case the defendant's counsel asked the Court to charge, "That in fixing the grade of crime "of which the defendant is charged, the evidence of his

" intoxication becomes very important and must be carefully weighed."

To that charge the defendant was entitled.

People vs. Batting, 49 *How. Pr.* 392.

The Court refused to charge as requested, but did charge (folio 1786) that " All the evidence in the case, " gentlemen, is to be carefully weighed, but it is not in " the province of the Court to tell you what is important " or otherwise. You are to determine the importance of " the testimony."

To which refusal to charge defendant duly excepted.

It was the duty of the Court to have charged that evidence of his intoxication became very important in fixing the grade of the crime, and the Court cannot say but that such refusal influenced the Jury in arriving at a verdict of murder in the first degree.

V.

The cause was submitted to the Jury on the afternoon of May 9, 1889 (folio 1788 of case). The Court adjourned until 10 P. M. of that day, and the Jury still being unable to agree, an adjournment is taken until 9.30 A. M. of the following day. Some time after that hour the Jury are brought into Court and state (folio 1789 of of case), that they have not agreed, and ask for instructions upon certain specific points (folio 1791 of case), to wit: In regard to the doctor's evidence, in regard to the boy's testimony on the morning of the tragedy, and in regard to the first and second degree.

Those instructions could have been given by a simple reading of the evidence and a definition of the two degrees of murder.

And the question of the foreman shows that the disagreement was upon the question of those two degrees.

The defendant claims that the entire instructions given by the Court in pursuance of such request were erroneous and prejudicial to the defendant. That instead of being instructions upon the points which the Jury desired to have elucidated, it was a clean cold argument in favor of a conviction of murder in the first degree which would have done credit to the District Attorney (folio 1792 to 1805 of the case).

It was searching after additional reasons besides those given by the doctors or the boy in regard to the transaction on the morning of the killing, why the defendant was responsible for his acts: And cites conversations with witness King and Mrs. Reid, and urges those transactions as reasons for a conviction of murder in the highest degree. It was exceedingly unfair to the defendant, and coming as it did after about sixteen hours of disagreement by the Jury between the two degrees, such a strong expression of the Court's convictions could not well have failed to bring about the result which ensued in this case, and within a very short time after such instructions the Jury rendered a verdict of murder in the first degree.

No exception to such charge was necessary.

People vs. Wileman, 44 *Hun.* 187.

The law now requiring an appeal direct to this Court, the Court will review the evidence more carefully than if the General Term intervened.

VI.

The sentence imposed is illegal and unconstitutional. The conviction herein should be reversed and a new trial granted.

C. S. HATCH,

Attorney for Appellant.

COURT OF APPEALS.

PEOPLE OF THE STATE OF NEW YORK,
Respondents.

AGAINST

WILLIAM KEMMLER, otherwise called JOHN HORT.
Appellant.

RESPONDENT'S BRIEF.

GEORGE T. QUINBY, District Attorney of Erie County for Respondent.

CHARLES S. HATCH, and CHARLES SICKMON, Attorneys for Appellant.

STATEMENT OF THE CASE.

This is an appeal from a judgment of the Court of Oyer and Terminer, held in and for the County of Erie, on the 14th day of May, 1889, adjudging the defendant guilty of the crime of murder in the first degree, and sentencing him to be executed by the application of electricity [p 452 and 453, folio 1,807 and 1,809].

HISTORY OF THE CASE.

The defendant, William Kemmler, was born in the City of Philadelphia, Pennsylvania, in the year 1861, and at time of the commission of the homicide he was about 28 years of age; at the City of Philadelphia he was engaged in the huckstering business, and sold market produce, by peddling through the public streets; during the course of his business dealings, he became acquainted with a woman named Tillie Ziegler, the acquaintance ripened into an unlawful intimacy, and finally resulted in the defendant's eloping with Tillie Ziegler and coming to the City of Buffalo in the fall of 1887. The defendant, Kemmler, adopted the name of Hort and carried on his business in Buffalo under that name. To avoid confusion throughout this brief, Kemmler or Hort will be referred to simply as the defendant, and Tillie Ziegler will be referred to as the deceased.

Tillie Ziegler was a married woman and had a child about four years of age, and at the time of the elopement they brought the child to the City of Buffalo, commenced living together and kept house on Elk St. [See statement of the defendant, p. 161.] Immediately prior to the departure of the defendant Kemmler from the City of Philadelphia, he was married there to a woman named Ida Forter, [p. 204 fol. 814]. She appears to have been a domestic living in the same house where he boarded. The woman with whom he eloped, Tillie Ziegler, was the wife of one Fred Ziegler, a cabinet-maker, [fol. 817.] Kemmler's first wife is still living in the City of Philadelphia, (fol. 826). [The above is taken from the testimony of

Henry Kemmler, a brother of the defendant.] It further appears from the evidence of the same witness that the mother of the defendant died some 13 years ago, of consumption, and that his father was a drinking man, [p. 347, fol. 1,385–7]. The period at which the father began drinking is stated by the witness to have been when he was about ten years of age, (fol. 1,394.

After their location at the city of Buffalo defendant carried on a huckstering business ; he bought produce and vegetables at the Elk street market, and peddled them through the streets of the city on a wagon. He carried on this business up to the time of the homicide in question ; for a little period during the spring of '88 he appears to have engaged a portion of his time in fishing, and consorted with some people who carried on that occupation in Lake Erie. He managed his business with considerable success ; the wholesale dealers on the market give testimony to his shrewdness in bargaining, and to his general good judgment. His clerks and assistants in the business also give some evidence as to the prosperous condition of his trade, and at the time of the homicide there was saved up and in a trunk in his house a sum of money amounting to about $500, which was taken charge of by the police. It also appears that Kemmler was a drinking man and at times drank to excess ; a number of witnesses gave evidence of drinking bouts, when Kemmler would go off on a drunk and keep it up for a day or two. It appears to have been a constant source of irritation at home and the evidence shows that his paramour complained bitterly of his drinking, and there were frequent quarrels over his unfortunate weakness. It proceeded to such an extent that the deceased threatened unless he mended his ways that she would take her little child and return to Philadelphia.

There also enters into this case the relations which one of the clerks of the defendant sustained to himself and his wife. John De Bella [p. 104, fol. 414] was employed by Kemmler some time during the summer of 1888 ; at this time Kemmler went under the assumed name of John Hort. Together they peddled their garden produce, and De Bella became an inmate of the defendant's family. Some of the expressions made by the defendant would indicate that he was jealous of De Bella and questioned his relations with his wife. Whether the motive of this crime was jealousy of De Bella, or whether it was provoked by quarrels between the defendant and his paramour, and her threatening to leave him and return to the city of Philadelphia, is an open question. There is sufficient evidence in the case to give either a reasonable and substantial basis. The neighbors living in the premises occupied by the deceased, No. 526 South Division street, speak favorably of Tillie Ziegler. Mrs. Mary Reid testifies to her general comely and good appearance, and so far as she observed, her general conduct was good, excepting that on several occasions she heard quarrels between the deceased and the defendant concerning his drinking, and in which she says deceased used unlady-like language.

On the 28th day of March, the day before the homicide, the defendant Kemmler went out with De Bella and peddled during the afternoon [fol. 489]. They stopped at a saloon, corner Seventh and Court streets, where they drank somewhat and returned home about half-past 8 o'clock. The witness says that the defendant was intoxicated on his return. At the saloon he had received a bird-cage which he took home and carried into the house and then brought out a lamp, so that they could see to unload the wagon and care for the horse [fol. 511]. Nothing appears to have transpired of an unusual character in the house that evening, but during the night time the witness heard the defendant and the deceased quarreling [p. 126–7, fols. 503–6]. He says that he heard one of them call the other an opprobrious name. On the day of the homicide the witness De Bella got up early in the morning [fol. 425], and went out into the barn to attend the horses and to fix the wagons for the day's peddling trip [fol. 427]. When De Bella went out into the barn defendant was not yet up, but the deceased was about the house fixing the fire preparing the morning meal. While the witness was working at the barn Kemmler came out to him and had a conversation concerning the amount of money they had received the day before. When this conversation took place [p. 108, fol. 428] he says to me, "How much money did I count out last night?" I says "$13 and 13 cents." He says, "Well, I counted it this morning and it was $14 and 13 cents." And I says, "All right." The witness continues:

Q. Was he all right that morning—was he sober?

A. Oh, yes; the same as any other morning; he looked all right.

They had a further conversation [fol. 431] where the witness said to Kemmler, "Billy, I guess I might as well put them eggs from one barrel into another; for we are liable to load apples to-day, and there will be so much more room in the wagon." Witness said "All right, I guess you better."

There was around the barn at this time a boy named Dennis McMahon who was helping about the premises. The defendant said to Dennis [p. 111, fol. 441,] "I guess you had better water that black horse, Dennis," and the witness De Bella said "I watered him." The witness De Bella further testified on [p. 115, fol. 457–8,] that the deceased came out of the barn on the morning in question, while he was handling the eggs, and asked for some; that he (Kemmler) went out from the barn, jumped into the wagon, and gave her the eggs.

Dennis McMahon corroborates the testimony of De Bella as to the particulars of what transpired on this morning, immediately preceding the homicide, [p. 139, fol. 553–7.] He says that the defendant came out and said "Good morning," and told him to water the horse, and that Kemmler then went to the stable and helped to clean the horses. While the witness was working in the stables the deceased came out and said that the bird that Charlie Spang gave her did not sing, referring to the same bird that defendant brought home the night before. She sent Dennis to the grocery for some fried cakes and a loaf of bread [p. 140, fol. 556.] At this time the defendant was in the barn. After the witness had returned from the grocery he went back into the barn and there saw the defendant fixing the barn door. He was hammering at the hinge. Witness told the defendant that the deceased wanted some eggs, and the defendant then got up into the wagon and filled a little basket; and then deceased took the eggs and went into the house. Just before the defendant went into the house, De Bella, who goes by the nick-name of "Yellow," asked if he should change the eggs from one barrel to another, and the defendant said yes; after the defendant had been in the house some few minutes, which is placed by the witness, at fifteen or twenty, the witness heard some noise, but nothing that attracted his attention, until he, De Bella, asked for a match. He started for the house to to obtain one, and, on looking through a broken pane of glass, discovered the deceased lying upon her face in the kitchen.

Thos. McMahon, a lad of about fifteen years of age, was also working for the defendant at the time of the homicide; he got there in the morning about half-past seven, [p. 143, fol. 570.] This witness was a brother of Dennis McMahon. At the time he got there, Kemmler was just coming from the barn to the house for his breakfast, and he went and stood in the barn door with his brother. After he had been standing there some few minutes, he heard a noise, as if of the breaking of dishes [fol. 574] He heard no cries; he went around to the western side of the house—the barn being located to the south and west—and saw the defendant standing by the side door, on the stoop, wiping his hands with a handkerchief. The witness asked him if he was going to load up the stuff that morning, and he said "no," [fol. 577 and 579.] The witness then went round to the back of the house and looked in on the stoop, and saw the deceased lying on the floor, with blood all about. The boy then went out and followed Kemmler, and saw him arrested. In Martin's saloon, where the defendant stopped to get a drink, he heard him say, "I want to hang, the sooner, the better, I want the rope, the sooner, the better," [p. 147, fol 586.] The witness, on having his attention called to the subject of a conversation when he first reached the house, at [fol. 587,] testified that he heard voices as he came by the house, and heard the defendant say that he wanted to open his trunk, and that this was heard before the breaking of the dishes took place.

After the defendant, Kemmler, had spoken to the boys in the barn concerning their morning duties and work, and then left them and went into the house, presumably to get his breakfast, the narrative of events is taken up by the witness, Mrs. Mary Reid. She is worn on page 53. She lived in the front part of the building, and the defendant and his family lived in the rear part. From her kitchen there was a door that led into the defendant's rooms, but this was closed. This afforded a ready medium for the sound from the rooms of the defendant. [Fol. 217 and 219.] The kitchen of the defendant immediately adjoined the kitchen of the witness. She testifies that on the morning of the 29th of March she was busy washing the dishes in her pantry, at about 8 o'clock in the morning [fol. 226], and the first thing she heard was a terrible blow, followed by an awful scream [fol. 229] in a feminine voice. Then she heard something as though a drop of something heavy on the floor, and then she heard a hacking as though some one was chopping wood. [Fol. 231.] She says: "And then I heard screaming again, and I ran to my door that leads out on the porch, and Mrs. Roberts came and had her window open. And I spoke to Mrs. Roberts." [Fol. 233.] "I went back to the door that goes from my kitchen to Mrs. Hort's. I rapped on my door and called, 'Mrs. Hort,' three times. She did not answer me, and I stepped back to my outside door, and I heard some one walk toward their outside door and go out. It was Mr. Hort." [Fol. 235.] I says, 'Mr. Hort, what's the matter?' He says, 'I have killed her.' I says, 'You don't mean it.' He says, 'Yes, Mrs. Roberts, I have, and I will take the rope for it.' I says, 'No you haven't.' He says, 'Yes, I have.' His hands were stained with blood. I then went back and got my two little children ready and my sister. We went over to Mrs. Roberts. I there saw Mrs. Roberts and Asa D. King. I had a conversation there and then I went back and got the defendant's little girl. [Fol. 239.] I found her in my kitchen. I heard that the defendant carried her in, but I did not see him." The witness then went into the apartments of the defendant [fol. 243.] to get the little child's clothes. She says: "The table was upset, dishes on the floor, and there was blood all over the floor."

Asa D. King is a resident of the city of Boston, in the State of Massachusetts, and arrived in the City of Buffalo on the early morning train on the 29th of March. He stopped at the house of his father, Earl D. King, 530 South Division street. [p. 41., fol. 162-7]; this house is immediately to the east of the premises of the defendant. When Mary J. Reid came to his father's house with her children he came out and went back to the apartments of the defendant. [p. 43, fol. 569.] He says, "I opened the door and saw a person lying there on hands and knees, or knees and arms swaying backwards and forwards, blood all over head and hair down on the floor. The hair was long; a pool of blood lying right by the left hand side. I shut the door and came back on to the stoop. I then turned round again and opened the door a second time, and facing me stood the defendant. He was wiping his hands with something—I could not tell what—I looked at him, and at the person lying down there, and said to him, "This is brutal, man; let's go for the doctor." I stepped back from the doorway and he stepped right out on to the sill of the door, partially over the arm of the deceased, or the person that lay on the floor. At the corner of South Division and Jefferson streets he turned and opened the door of a saloon. I asked him if he was going in there, and he says, "Yes." [Fol. 174.] I said, "Let's go for the doctor," and he says, "No, I won't." He passed into the saloon, walked up to the door, and asked for a glass of beer. I said to the bartender, "Don't give this man anything to drink; he has brained his wife, and she lies weltering in her own blood." The bartender refused. He said nothing just then, until the bartender refused, and as the bartender stepped back towards me he says, [fol. 175] "Yes, I have, and I am willing to take the rope for it; the sooner the better." I then said, "I want this man to go for the doctor," and so some one sitting there said he would go. Defendant then went out of the saloon and King followed him. After reaching the corner of Swan street King said, "Does the doctor live down here?" He then turned and said, "Let me go and get a glass of beer, and I will go and get a doctor." I said, "All right." He stepped into a saloon [fol. 177], and when he came out I asked him again if he would go for the doctor; and he said, "No, I won't;" and then a policeman came along and King turned the defendant over into the custody of the officer. [Fol 179.]

Upon cross-examination King went over his direct examination seriatim [p. 52, fol. 254]. He was asked: "During all the time you were with Kemmler that morning he spoke to you only twice?" "No sir; four times—four or five."

Q. Spoke to you directly?

A. No, he didn't speak to me. Answered my questions.

Q. During the time you were with him he answered four questions or three?

A. I should say five, as near as I could make out, four or five.

Nellie Roberts resides at 530 South Division street, corroborates the testimony of Mrs. Reid [p. 73, fol. 291–3]. She looked out of the window of her house which faced the premises of the defendant. She heard some one trying keys in the defendant's rooms and in a moment or two the defendant came out on the veranda. She observed that his hands were stained with blood; that he was wringing or wiping his hands off. She heard him say that he had killed his wife; and Mrs. Reid's exclamation, "You have'nt, have you." [Fol. 296]. She then withdrew from the window, but shortly afterward looked out and saw defendant [fol. 299] take his little child in his arms and carry her to Mrs. Reid's door [fol. 300], she testified that the defendant appeared to be sober. [Fol. 311].

The narrative of events is next taken up by John O'Neil, the police officer who took charge of the defendant as stated by Asa D. King [p. 79, fol. 315.] He met the defendant near Martin's saloon on South Division and Jefferson streets. He told the defendant he wanted him and defendant said, [fol. 322] "All right, I will go with you." O'Neil asked defendant if he hadn't been licking his wife. He said, "Yes." O'Neil asked what he hit her with. He said, "with a hatchet," O'Neil asked what he had done it for; he said. "That is to be found out." O'Neil then took the defendant to his home, 526 South Division street. The walk is about a minute and a half; defendant identified the room as his home. Deceased was lying on the floor on her face covered with blood. The witness said to defendant [fol. 325], "You have made a good job of it," and he replied, "I guess so" When he was taken to the station house he was searched and some money was found on his person, and in the trunk at his house there was three or four hundred dollars [fol. 330]. The witness testifies that, in his opinion, the defendant was sober and appeared all right, and talked coherently [p. 84, fol. 333]. At the time the officer came to the house Dr. Blackmon, who had been called by the young boy McMahon was in the kitchen. The testimony of Dr. Blackmon is given on page 88. He says that he was called to 526 South Division street by a young man whose name he does not know; that on entering the place he saw a woman lying on the floor in a pool of blood [fol. 352]; that the head was toward the stove at the time he picked her up and spoke to her; he discovered that she was unconscious and blood flowing from several wounds, and the brain substance oozing out. He carried her to a bed in the adjoining room and placed her on it. He describes the general appearance of the room [fol. 355]. "There was blood spattered all over the floor for quite a distance around." [Fol. 363]. The table was turned bottom side up; the dishes were broken and the breakfast on the stove apparently undisturbed. The griddle was off, the chairs tipped over and general confusion.

The officer found a hatchet lying in the room covered with blood and concealed under a cloth. [Fol. 364.] While the witness was about the premises Officer O'Neil brought the defendant there, and, in response to an inquiry as to the condition of the defendant, the doctor testified, at folio 371.

Q. You noticed him at this time?

A. Yes, sir.

Q. What was his condition as to sobriety?

A. Why, I thought he was sober enough.

Q. Did he look apparently sober?

A. He did.

On cross-examination at fol. 381, he testified further:

Q. You saw Kemmler when he was brought in?

A. I did.

Q. He had the appearance of a man who had been drinking, had he not?

A. Well, I didn't notice anything of the kind.

Q. What is that?

A. I didn't see anything that indicated it.

Q. You didn't notice to see, did you?

A. I looked him over a little bit.

Deceased was then taken to the Fitch Accident Hospital, and Roswell F. Park, M. D., was called to make an examination. He swore at page 30 of the case. At fol. 123, he says: "I found her with a large number of rough scalp wounds, lacerated skull wounds, and, of course, the head covered with blood, more or less; bruises and disfigured."

The witness performed an operation on her with a view of saving her life, if possible. [Described at fol. 124.]

Charles S. Jones, M. D., resident physician of the Fitch Accident Hospital, testifies to the general care given the defendant while at the hospital. [Page 22, fol. 86.]

This doctor was present at an examination made and counted the number of wounds upon the head and body; they were twenty-six in number. [Fol. 96.]

Henry F. Bingham, M. D., post mortem examiner of the County of Erie, was called and testified. [Page 68, fol. 271.] At fols. 275 and 282 he gives an elaborate description of the different wounds, numbering in all some twenty-six, and gives his opinion that these wounds were the cause of death. Matilda Ziegler died at the hospital on Saturday morning, March 30th, at 12 o'clock and 30 minutes.

Defendant was taken by Officer O'Neil to the Police Station, and since that time has been in custody.

The case was presented to the Grand Jury of the County of Erie at the April Term, 1889, who found the indictment set forth on pages 1 and 2. Defendant was arraigned on the 8th day of April, and entered a plea of "not guilty;" afterwards and on the 6th day of

May, 1889, the case came on for trial before the Hon. Henry A. Childs, Presiding Justice, at a term of the Court of Oyer and Terminer held in and for the County of Erie. The Jury rendered a verdict of "Guilty of the crime as charged in the indictment," and on the 14th day of April, 1889, the defendant was sentenced to be executed by the application of electricity, at the Auburn State Prison, and from the judgment of conviction he has taken an appeal to the Court of Appeals.

The defense interposed was, intoxication and mental incapacity. The defense called a number of witnesses, who stated facts tending to show continued and constant use of stimulants by defendant. This evidence was offered, not only with a view of obtaining the benefits afforded by Section 22 of the Penal Code, providing that the jury might take into consideration the effect of intoxication at the time of the commission of an offense in determining the purpose, motive or intent with which the act was committed, but also to show that this continued and constant use of stimulants had so far effected the mind and mental faculties of the defendant that he was not capable of premeditating and deliberating. The evidence offered will be taken witness by witness and a summary of the facts testified to by each, given.

Charles H. Spang [p. 163, fol. 651.] He resides at 140 Erie street, in the city of Buffalo, and has been in the employ of defendant on two occasions. He worked for him first the August preceding the homicide for some six months, [fol. 652.] He then saw defendant frequently about the market when he was buying his stock; at the time of the homicide, he was again in his employ running another wagon and had been for some five weeks, [fol. 656.] He says Kemmler was a hard drinker. "When I first went to work for him I had left my former employer and had got a job with Billy (meaning the defendant) at the market. One morning he told me to come along and we would work on shares together. From the first day I went with him until the time I quit him, it was one continual drunk all the time. I never had a cent when night came nor he didn't. We would blow everything in.

He says they drank every morning when they started out, [fol. 658]; that they would spend sometimes four dollars and five dollars a day for drinks, [fol. 662.] The second time, he was in the employ of the defendant, a horse and wagon was bought for him and defendant started him out peddling, [fol. 664.] Defendant was not drinking so much at this second time. He says they drank very often [fol. 666] and on the day before the homicide, the defendant, Spang and De Bella, who went by the nickname of "Yellow," stopped at a saloon on the Terrace and played checkers and drank during the afternoon, [fols. 667 and 671.] They drank whisky, beer and cider.

Spang told defendant to come to his house and he would give him the bird he promised for his wife, meaning the deceased. [Fol. 674.] When they reached the Spang home they went upstairs and Spang gave him the bird and cage ; defendant staggered out with it. Spang says that defendant was nervous and trembling in the morning after he had been drinking;

hat he was irritable. [Fol. 678.] Spang on his way o work met the defendant at Martin's saloon the norning of the homicide; he says the defendant appeared pale and trembling; that there was a strange expression in his eyes [fol. 682]; he says that two weeks prior to the commission of this offense he had been drinking quite freely [fol. 686], and that defendant seemed melancholy; sometimes he was obliged to address two or three questions to him before receiving an answer. [Fol. 689.] His memory was poor. He states that the defendant would not talk freely [fol. 696]; that he would sit in a moody fashion. Fol. 693.] From the facts which the witness has narrated, he gives it as his opinion [at fol. 700] that he was in a very melancholy condition, and that his actions were a little unreasonable.

On cross-examination, the witness says of himself, that he has been a hard drinker for the past twenty-one years; that since the June preceding the homicide he has been drinking nearly all the time [fol. 707]; that nearly every morning he would wake up and find himself sober, but would manage to get drunk by ten in the morning. [Fol. 709.]

He says that he had been drinking on morning of his giving his evidence; that he has been a drinker since he was fourteen years of age [fol. 713]; notwithstanding that he was intoxicated nearly every day, he still managed to peddle out his loads, and that he would go home and settle up with the defendant's supposed wife, take care of his horses and discharge the usual duties. [Fols. 718 and 719.] He testifies that they purchased goods from Mr. Gale, Isaac Williams, Williams & Vishier, Rea & Powell, wholesale dealers in produce, on the Elk street market; that as a rule, defendant bought the goods [fol. 727]; after the loads were purchased they would start out and both of them would sell goods [fol. 734], and both make change. As fast as any money was realized from goods sold, it was turned over to defendant, who carried the money. Every night the profits were divided, and some days they would make ten or twelve dollars, some days fifteen and others only five. He gives it as an average that they would make thirty or forty dollars a week apiece. [Fol. 736.] On the 11th of March, he entered the employ of the defendant the second time [fol. 746], and continued to work for him until the time of the homicide. During the second term of employment, he ran a separate wagon from that of Kemmler. With regard to the day before the homicide, he testified that they played checkers all the afternoon [fol. 755]; that they played for the drinks, and left there about six o'clock in the afternoon.

Henry Kemmler was sworn on p. 196, fol. 782. He is a brother of the defendant; he testifies that his brother was a hard drinker when at Philadelphia, before he came to Buffalo. [Fol. 786.] Henry did not see his brother very often at Philadelphia, sometimes three or four weeks would elapse. [Fol. 785.] He tells of an incident when he took his horse and wanted to hitch him up and would not put any thill stretches on him, what is ordinarily called "hold-back" straps [fol. 794 and 795]; says the defendant would start talking but nobody could understand or make out what he was talking about [fol. 797]. He would change from one subject of conversation to the other and he gives it as his opinion that the defendant acted in an irrational manner [fol. 799]. He testifies to an occasion when he came to Buffalo and visited his brother here at the Christmas season before the homicide. On one evening they had a fraternal drunk [fol. 802]. He testifies during the time he was in Buffalo, as follows: [Fol. 809.]

Q. How did he act during that time? During those two weeks you were here?

A. He acted right enough to me.

Q. What is that?

A. He seemed to act right enough to me, as far as I could see.

Thomas M. Carpenter, sworn [p. 209, fol. 832]. He resides at Martin's Corners and is engaged in the huckstering business; he became acquainted with defendant about Decoration Day, '88. At fol. 837, he says, defendant came to my saloon once and got outside of a quart of whiskey as quick as any half-dozen men would, or a dozen and a half. This occurred at Christmas time when his brother and his wife came from Philadelphia and were visiting here. He says that the defendant was free in his conviviality [fol. 829]; that he has seen the defendant drunk on two or three occasions. On the Tuesday before the homicide, he met the defendant when he was out peddling; they stopped at a saloon and drank until the defendant was drunk [fol. 846]. He tells of another occasion when he made a wager with defendant as to which one could drink the harder [fol. 847]; that they drank all day, and defendant sent his horse and wagon home and spent the night with the witness; that he would not go to bed, but sat up in a high chair behind the stove [fol. 851]; and that he stayed there in a stupid or torpid condition ; that he sat in this way all during the night, and that he drank a quart bottle of whiskey. The next day they tried to get over the effects of their drinking, but only succeeded in getting more intoxicated [fol. 855]. He testifies further to having seen defendant on other occasions, when he has been drinking, but could give no idea as to the number.

He states that the defendant usually sits with his head hanging down, and is quite taciturn. On cross-examination the witness testifies that his bibulous habits commenced when he was a lad of eight or ten years of age. He has a wife and two children living and on the occasion when they made the bet as to who could drink the more [fol. 83], he brought the defendant to his house where his wife and children were, and that they occupied a room together when the defendant drank up a quart of whiskey. He says of himself that he gets drunk as often as he pleases.

Thomas Martin, sworn on page 225, fol. 897. He is engaged in the saloon business. He knew the defendant six or seven months prior to the homicide. Defendant occasionally came to his saloon. Says the defendant would come into his room and would sit bending over with his head in his hands from three to five hours at a time. [Fol. 904.] When he was spoken to he would not always answer. On the morning of the homicide the defendant came to his place, and Asa D. King came in afterwards. He asked for a glass of beer, and when King told him what happened witness refused to give it to him. [Fol. 913.] He then said he thought his eyes looked wild, and he says that he never observed Kemmler look in this way before. [Fol. 915.] On cross-examination the witness says that he cannot recall observing the defendant sit in the manner he has described more than three times, and on these occasions he had been drinking somewhat, generally beer.

John Maroney, sworn at page 235, fol. 939. Witness is a saloon keeper, and has a place on the corner of Heacock and Exchange streets. This is within a short distance of defendant's home. He occasionally came to the witness' place and drank. He is not able to state as to any number of times when he had seen the defendant under the influence of liquor. He tells of one occasion when he was at the saloon and the defendant's supposed wife came over after him [fol. 947], and the defendant said, "Go home; I will be home after you." He says this woman came after him occasionally, and sometimes when she came to his grocery for goods she would ask if the defendant was there. Maroney would say, "Yes," and she would call defendant to go home. He would say, "Will you go home? I will be home after you." [Fol. 949.] He thinks this occurred three or four times.

Dede J. Joy, sworn at page 240, fol. 958. He is engaged in the huckstering business and was acquainted with the defendant, and saw him trading at Elk street market. Has seen the defendant frequently intoxicated [fol. 962], and thinks that this has occurred as often as three times a week. [Fol. 965.] Says that he has seen him intoxicated on two or three different occasions on the market. [Fol. 965.] He says when the defendant is provoked that he would not talk much. He was of a very quiet disposition. Joy always considered him that way. When he was drunk he always acted pretty quiet. [Fol. 968.]

"I have seen him on two or three different occasions in the market with his head hanging similar to what he is sitting there now; that shortly before the homicide, for two or three weeks, the defendant had failed to recognize him, and would not appear to be very sociable, [fol. 971,] did not ask him to drink and gives an opinion that the defendant's conduct is unreasonable.

George Meyer [p. 161, fol. 1043,] resides on the Island at the foot of Michigan street; he has known the defendant since the winter of 1887–8; at this time defendant was engaged in the occupation of fishing; he tells of an occasion when he saw defendant drunk in Kilcourse's saloon; when they started home he got into the defendant's wagon and they drove up Smith street, until they came to a railroad track; and that the defendant turned his horse one side, and wanted to jump him over the fence, [fol. 1054]; when they came to the fence, the horse ran into it and turned sideways, and then the defendant drove along on the side of the fence and went home. His impression of this occasion is given as follows:

Q. From what you saw of the defendant on that occasion, how did his conduct impress you, as being reasonable or unreasonable?

A. Why, pretty fair; he talked pretty sensible.

Q. I mean his conduct, his driving, how did that impress you, as reasonable or unreasonable?

A. He drove the horse along with his head down, and didn't talk much to us.

At [fol. 1,059,] on cross-examination, he states that the defendant had been drinking, and that he was having some fun with his horse in running it.

Paul Marshall, sworn for the defendant, [p. 267, fol. 1,065,] testified that he was in the huckstering business, and knew the defendant, and frequently met him on the Elk street market in the course of their common business; he says he has seen the defendant drunk a few times; he narrates one occasion when he joined defendant in a spree; they drank for two days; he says he has been with him on sprees on more than one occasion, [fol. 1,073,] when they have drank for two or three days each; there were other occasions in his recollection. He has seen the defendant drunk forty or fifty times, [fol. 1,080.] On cross-examination, he says of himself:

Q. How many times have you been intoxicated during that time?

A. Well, I generally get drunk every other day to tell the truth.

Q. You sometimes do skip a day, do you?

A. Very seldom, if I make money enough.

Q. You spend all the money you can get for whisky, do you not?

A. Yes, sir, I do.

Q. Make it a business?

A. I make it a business.

He states that he thinks he can determine whether a man is drunk when he is intoxicated himself; he says that on this occasion when they started off on their drinking bout they spent about $250.

Edward Eugene Gallagher sworn for the defendant [p. 273, fol. 1091], testified that he was the porter at the Elk street market, and also a saloon keeper; he has known defendant since January, 1887; he says he has seen defendant intoxicated four or five times; on one occasion when he was engaged in fishing on the ice, he came to his saloon intoxicated. He had some rigging and fishing tackle, and wanted the witness to buy them; said if he did not, he would burn the stuff up. Witness bought the goods of him for $10 to conciliate defendant, although at the same time a Mr. Shea offered him $13 for the same. Gallagher says the goods he bought were worth $35, and that he only bought the goods because defendant said he would burn them up if he did not. He narrates another occasion when the defendant came to his house and started a row and wanted to fight a small boy. [Fol. 1105.]

Michael O'Loughlin [p. 281, fol. 1122,] sworn for the defendant, says he is fifteen years of age; that he worked for defendant and helped him peddling; that he worked for about four months, and that he left a week before the 29th of March. He states that they would start to sell their goods about ten o'clock in the morning; that defendant, Kemmler, would get drunk four or five times a week [fol. 1131]; that there were some days when he would not get drunk, because he took cider; he knew the defendant was drunk because he staggered.

Martin Shea is a laborer, and during the spring of 1888 was engaged in fishing. He knows defendant, and has seen him intoxicated ; thinks he has seen him intoxicated five or six times. [Fol. 1155.]

Dennis McMahon recalled for the defense [p. 286, fol. 1143], testified that he had been working for the defendant about five months before the homicide, and he thinks he has seen the defendant drinking about forty times. He has seen the defendant drunk eleven or twelve times, so that he staggered.

Jacob Burkhart [p. 290, fol. 1159.] Witness is engaged in the business of barbering, corner of Myrtle avenue and Jefferson street, and knew the defendant for about ten months prior to the homicide ; says he has shaved him about once a week. Occasionally defendant did not come to his place. He testifies that he has never seen the defendant intoxicated, nor has he ever noticed anything strange or unusual in his actions or conduct.

John Kehoe [p. 334, fol. 1335]. He is engaged in the huckstering business, and is acquainted with the defendant, Kemmler ; knew him for about nine months previous to the homicide. He has seen defendant intoxicated several times, but cannot express the number. He corroborates the testimony of Martin ; he saw Kemmler drunk at Martin's saloon about Christmas time, preceding the homicide, and narrates the events of the evening ; they started on a spree and drank until Kemmler had to be carried and helped to his wagon [fol. 1347] ; he has seen him in other saloons drinking on several occasions ; defendant would sit in the saloon with his head hanging for half an hour at a time, and then would walk out [fol. 1353] ; his conduct impressed him as being irrational. His understanding of irrational conduct is based upon the fact that he believed the witness to have been drunk and acted foolishly. The witness says of himself that he gets drunk whenever he can; that he has been drunk hundreds and hundreds of times himself; he thinks he could produce a thousand people in Buffalo to testify to his being a drunkard.

John Burkhart [p. 341, fol. 1360] is engaged in the huckstering business and known to defendant for about eight months prior to the homicide. He has seen him frequently intoxicated [fol. 1362], sometimes once a week, sometimes two or three times a week. He tells of an occasion when he saw him drunk on the Chippewa market; his wife and a little boy put him in a wagon and took him home. He tells of another occasion when he saw the defendant driving his cart when he was so drunk that he could not sit up [fol. 1371]. He gives it as his opinion that his conduct was irrational.

The defense called William J. Collins [p. 251, fol. 1001] to establish by this witness that when at the station house immediately after the arrest defendant was furnished with whisky; he gave some evidence showing that a small amount of liquor had been given to the prisoner while in custody.

Patrick Quinn [p. 293, fol. 1171]. He is the Captain of Police Station No. 1, and was in charge on the day of the arrest of the defendant; he paid two bills for whisky and cigars; one of $1.50 [fol. 1183], and the second of $2.50 [fol. 1186]. The bills are dated on the 4th of April [fol. 1195] and were paid on the 9th day of April.

Richard Collins was sworn [p. 301, fol. 1203]. He was the doorman at Police Station No 1, where the defendant was confined, and was on duty on the day of the arrest. He says that liquor was furnished to the defendant [fol. 1208] on the day of his arrest, and that he gave him two drinks possibly three [fol. 1211]; they were ordinary drinks [fol. 1213].

The defense called T. D. Crothers [p. 352, fol. 1406]. He is connected with a private inebriate asylum called Walnut Lodge at the city of Hartford, Conn. He was formerly with the inebriate asylum at Binghamton in this State. He is the editor of a publication called the *Journal of Inebriety*, and has devoted some fifteen years to the study of the effects of alcohol on the human system, and made it a specialty. He says that he has examined some 2,500 or 3,000 cases. He states that the effect of alcohol on the system causes a defective brain [fol. 1412]; that the first effect is to stimulate the heart and brain; the second to paralyze it, "so that a man after using alcohol a while has a defective brain—a paralyzed brain—a brain incompetent to decide on the relations of life and of the finer conditions. This is the general effect. It produces a species of degeneration—brain degeneration—particularly in persons who use it to excess and continuously for any length of time."

Q. What is the effect upon the moral sense?

A. Destroys a man's character; destroys his veracity; destroys his power from judging right from wrong, and particularly his veracity and comprehension of right and wrong, and the power of discriminating between good and evil. The degeneration effects the moral nature, as well as it does the body and the brain.

Q. How does it effect the physical system?

A. Not so markedly. It effects the physical system in some degree; but not so marked as it does the brain and nervous system.

Q. What effect does it have upon the will power?

A. It lessens—destroys the will power; makes a man incapable of doing what he would do if he hadn't taken the spirits.

He claims that the brain of consumptive children is defective and impaired; that the relation between consumptive parents and inebriety is very close [fol. 1419]. A hypothetical question was put to the witness [fol. 1421], covering the data supplied by various witnesses called on behalf of the defense; this question, on account of its length, is not fully set forth in this brief, but attention is called to its radical defect. It is not a fair summary or statement of all the evidence in the case. It perhaps comprehends with reasonable fairness some portions of the evidence offered by the defendant, but it eliminates the people's evidence entirely. In answer to the hypothetical question as to the mental condition of the defendant, Dr. Crothers says [fol. 1423]. "In all probability such a mind would be unsound and incapable of discriminating as to the quality of his acts."

The answer proves or establishes absolutely nothing. Probabilities are the peculiar science of medicine but not of law. The doctor says [fol. 1424], that alcoholic insanity manifest certain delusions of persecution, of poisoning and of fear, and general incapacity to appreciate his surroundings of the relations he has to those who are nearest to him; a delusion as to the infidelity of a wife is one of the marked symptoms. The doctor examined defendant at the jail on the morning of testifying; he thinks defendant appears to be a man of weak intellect, of imperfect brain development, and more or less incapacitated to appreciate what transpires before him [fol. 1426]. He was hesitating and doubtful, and seemed suspicious as to the proper answers to give me. I find he has a dilated pupil, which is another sign of some brain trouble, in connection with the other history; the general appearance of a mind incapacitated,—a mind more or less defective and degenerate from various causes.

The cross examination of this witness is worthy of close scrutiny. It substantially destroys the groundwork and basis upon which the opinion and probabilities of the witness rest. At folio 1439–'41 the witness is called upon to classify what he calls alcoholic insanity, and he concludes that the defendant is not insane. The foundation of his theory concerning the defendant's mental condition is the fact that the defendant was a hard drinker [fol. 1442], and only that His examination of the defendant was confined to about twenty minutes [fol. 1442]:

Q. What ground did you go over with him?—Tell the jury.

A. Nothing, except to look at the man, and hear what he had to state, and ask him some questions; see about his capacity—mental capacity.

Q. Give us one question.

A. I asked him about his memory. I asked him if he had a good memory. He said he hadn't.

Q. Whether that was true or not you did not know?

A. No, sir, I did not.

Q. You knew the man was on trial here for a serious crime, did you not?

A. Yes, sir.

Q. Did you test his memory by any specific question?

A. No, sir, I asked him generally about it [fol. 1449]. I asked him if he remembered the circumstances of the crime. He hesitated, finally, after pressing the question in two or three different ways, he said he thought not; he said he did not remember it.

Q. Did you believe what he said to you?

A. I have no reason to doubt or disbelieve him.

At folio 1453. I asked him if he could remember what he had done, what he had sold and what he had bought the last month before the crime. He hesitated; gave no answer. The doctor changed the form of the question and the defendant still hesitated. He shook his head and said nothing [fol. 1456]. The doctor then asked if the defendant's father was a drinking man, and he said "yes" He asked how often his father got drunk [fol. 1458]. The defendant said he thought every week, at least on Sundays The only further inquiry concerning the defendant's father was as to his having died at an hospital of some brain disease, but whether or not his drinking habit was contracted before or after the birth of the defendant is not certain [fol. 1459]. The witness made somo enquiries concerning the condition of the mother, and ascertained that she died of consumption [fol. 1463], but it did not develop the age of the defendant at the time of the mother's death; nor of how long standing her consumption was, nor whether it was hereditary [fol. 1466]. He explains the relations of consumption to inebriety by stating that the physical condition of the children of consumptives is generally debilitated. The witness discovered that the defendant was suffering from a venereal disease [fol. 1474]. At folio 1478 the defendant was asked by his doctor if he wished the trial to terminate in his favor. He hesitated, and finally said "he did wish to live." Witness states that, in his opinion, the appearance of the eyes indicated a mental defect, but the examination was simply visual [fol. 1483]. As a result of his examination in the morning, witness states that he discovers a general defect; that his brain is small [fol. 1487]. He reaches this conclusion from the size of the man's head, but can't tell what that size is, or whether it is above or below the normal [fol. 1491]. He thinks the eye is too small; that its position is not right, and that this indicates a weakness in the brain [fols. 1496-1497]. He criticises the arch over his eyes as indicating a mental weakness [fol. 1500], and finds fault because his ears are too large [fol. 1507]. Witness states that he takes the formation of the ears into account in making up his opinion as to the mental condition of the defendant [fol. 1508]. He is not able to state whether the defendant, in his habit of hanging his head during the progress of the trial, is not shamming; and will not give an opinion on it [fol. 1514]. He does not think that there is anything strange in the fact that the defendant will not acknowledge the commission of the crime to him [fol. 1515]. The witness does not know that the defendant conducted his business up to the very morning of the crime; nor what kind of business he followed; nor that he bought his goods closely and prudently, and was considered by the commission merchants with whom he dealt as a competent and shrewd business man. The doctor did not know, nor take into account in his answers that the defendant was entirely sober on the morning of the commission of the crime [fol. 1523]. At the time of his diagnosis of the case he did not know as to what transpired at the time the crime was committed, and of the expressions made by the defendant that he had killed the deceased and was willing to take the consequences. The doctor states [fol. 1525] that such expressions on the part of the defendant would indicate that he was conscious of the nature and quality of his act. He further states that he did not know that defendant, after the commission of the crime, went to a saloon and there stated, about five minutes after the crime had been committed, that he "had killed her, and was willing to take the rope." He states that such declarations on the part of the defendant would be some evidence that he knew the nature and quality of his act [fol. 1527]. The witness says he did not discover any hallucination on the part of the defendant, and he does not know whether there is any ground for the defendant believing that his paramour, Tillie Ziegler, was unfaithful to him. Witness describes the effect of drink upon the brain, and at folio 1538 he says that one period of intoxication may destroy a man's power of conception.

Upon being asked at folio 1542 a question embracing the acts of the defendant on the morning when the homicide occurred; that the defendant arose about half-past seven o'clock, went out into his yard and told the boy there to water his horse that was used in his business; then went to work to fix up a door that was out of repair; and when his wife came out and asked for some eggs for breakfast, he took a basket, got into a wagon, and gave her the requisite quantity of eggs; handed them to her, and then stated that he was going into breakfast—would you say that such a person was in a condition to distinguish between right and wrong?. The witness finds himself unable to answer.

This constitutes the evidence offered by the defense.

The condition of the defendant on the morning of the homicide, which was entirely eliminated from the testimony of Dr. Crothers, and was not considered by him in the forming of his opinion, is here grouped together, is viz.: John De Bella, [p. 104, fol. 429] tells of the talk about the counting of the money for the sales of the previous day, talks about the changing of eggs from one barrel into the other on the morning in question, talks about the watering of the horse, [fol. 458,] and also that on the night before, when they returned home, the defendant was not so seriously intoxicated, but what he could carry the bird and cage into the house and come out carrying a lamp. [Page 128, fol. 511]. Dennis McMahon, the other boy [page 138, fol. 533], corroborates De Bella. He tells about defendant's fixing the hinges on the door [fol. 1558] and about the changing of the eggs [fol. 561]. Thomas McMahon, brother to last witness, corroborates him. Asa D. King, another witness, tells about overhearing a conversation in the house when he came to work, concerning the opening of the trunk [fol. 587]. Mary J. Reid gives the declaration of the defendant, immediately after the committing of the crime, that he had killed the deceased and would take the rope for it. A similar statement was made to the witness, Asa D. King, who in turn is corroborated by Thomas McMahon and Hugh McKenna. Officer O'Neil testifies as to the declaration made by the defendant at the time of the arrest, that he guesses he had made a good job of it; and he is corroborated by Dr. Blackmon. And all these witnesses state as their opinion, gathered from the appearance of the defendant, his actions and conduct, (one of the witnesses being a practicing physician) that he was apparently sober. Their testimony on this point is as follows: Mary J. Reid, page 68, folio 270; Nellie Roberts, page 78, folio 311; Officer O'Neil, page 84, folio 332; Doctor Blackmon, page 93, folios 371–81; Hugh McKenna. page 101, folio 409; (this witness was a saloon keeper and by general experience quite competent to judge upon the question of intoxication); John De Bella, page 104, folio 429; Dennis McMahon, page 138, folio 553, and Daniel E. Barry, page 149, folio 595.

The People then resumed the case and called seven merchants engaged in the commission business on the Elk street market, all of whom knew the defendant, and had business dealings with him. Their testimony is set forth in the case at pages 309 to 334, and is uniform in its general nature. A printed case cannot but feebly disclose the general appearance and reputation of witnesses. It, however, will appear that the witnesses who were called for the People to testify of their knowledge of the defendant, were each and all business men, carrying on a substantial trade, and were not, as was the general rule with the witnesses for the defence, drunkards and bummers.

William D. Riley, a commission merchant, says [fol. 1238] "I always looked upon the defendant as a very close, hard buyer. I could not make any money out of him." He says that he has seen the defendant intoxicated, but that he never saw anything out of the way in his actions or conduct [fol, 1241]. Melvin Carpenter says the defendant was a close buyer and paid cash [fol. 1249–'51]. William C. Townsend says the defendant was a straight-forward business man and a close buyer [fol. 1269]. Considered him a sharp, close business man. Charles O. Rogers: He purchased goods the day before the homicide, of him; bought nine or ten barrels of apples [fol. 1284–'5]. He says that defendant never made foolish offers for stock [fol. 1287]. Albert E. Mackley: He is engaged in the commission business and says the defendant has traded with him. Says the defendant generally paid cash; and he considered the defendant a fair buyer; that he used to examine the goods closely [fol. 1302]. John H. Gale, a commission merchant, says he has sold the defendant goods; that he was a close buyer, figured closely in his buying, and looked carefully at the quality of the goods. He knew when he got a good trade [fol. 1317].

The People called William C. Phelps, a practising physician and surgeon [p. 397, fol. 1585]. The doctor has been connected with the University of Buffalo as a Demonstrator of Anatomy for the past fourteen years and is the attending surgeon upon the General Hospital of the City of Buffalo. He has been surgeon to the Police of the City of Buffalo for two years and a half, and has had charge of a number of cases of insane people and drunkards. He has made a specialty of the study of insanity. He made an examination of the defendant at the police station on the afternoon of the day of his arrival. An effort was made to show the nature and extent of this examination, but it was objected to by the defence, and rather than raise any question upon the record, the result of the personal examination made by the doctor upon the defendant is not presented in the record, and was not received in the case. The witness' attention was called to the testimony of Dr. Crothers [fol. 1607]. He says there is nothing wrong with the size of the defendant's head ; that it is fair sized, and it does not indicate any mental weakness. There is nothing in his ears, or in the protuberance of the frontal bone over the eye, or in the eyes themselves that would afford any basis for an opinion that the mind of the defendant was enfeebled [fol. 1608–'10].

In answer to a hypothetical question, substantially the same that was put to Dr. Crothers, (compare fol. 1542 and 1611,) showing the acts and transactions of the defendant upon the morning of the homicide, the Doctor gives it as his opinion that such a person would know and be able to distinguish between right and wrong, and would understand the nature and quality of his act. The question is continued at [fol. 1612,] and takes in the declarations the defendant made after the homicide. The Doctor says that these statements indicate a consciousness on the part of the defendant of the nature and quality of the act. The Doctor says [fol. 1616,] that the position taken by the defendant is one easily assumed. He says that the effect of alcohol upon the human system and upon the brain, is extremely variable; that many men may use intoxicating liquors for years and yet not have their minds in anywise impaired [fol. 1618–19.] He says the fact that the defendant carried on his business in a close and prudent manner up to the very day of the homicide, would be evidence of his consciousness and knowledge of the nature and quality of his acts. He says the effect of consumption upon the human system, is simply to leave a general weakness in their offspring, but it does not specifically apply to the brain.

William H. Slacer, a practicing physician, was next called on behalf of the people on page 411, folio 1641. He is the consulting surgeon for the Sisters of Charity Hospital and for the Emergency Hospital; was formerly connected with the Insane Department of the Erie County Almshouse for six years. His testimony is an exact counterpart of the testimony of Dr. Phelps, and he confirms the Doctor in his conclusions and statements.

The above constitutes all the evidence offered in the case.

MOTIVE.

If attributed to jealousy of Tillie Ziegler, arrising from a suspected intimacy with De Bella, it is shown in the evidence of Daniel E. Barry, a police officer, [p. 49, fol. 607.]

Kemmler informed Barry that he was jealous of De Bella. A similar statement was made by defendant to his brother [p. 350, fol. 1397.] If the motive attributed is the domestic troubles and disagreements, the latter is shown in the evidence of Mary Reid [p. 63.] She says, "They [meaning the defendant and Tillie Ziegler], did not live happily together."

In speaking of their quarrels she says:

Q. Could you tell the subject they were disputing about?

A. Mostly because he was drunk.

John De Bella [p. 116, fol. 463] tells of the defendant stating to him that his wife [Tillie Ziegler] wanted to go to Philadelphia; that this occured about a week before the killing. Defendant said: "She wants me to go to Philadelphia; and when I want to go she don't want to go." That is what he said. "Woman's hell; she wanted to go to Philadelphia, and when I want to go she don't want to; that's the way it is."

On the night before the homicide, De Bella heard defendant and deceased quarreling. [Fol. 466.] The statement of the defendant at [p. 350, fol. 642,] is: "We quarreled frequently since we have been in Buffalo." And again, at fol. 648, he says that they "had difficulty about her wanting to go back to Philadelphia." It is unquestionable that the habit of drinking indulged in by the defendant, was a prolific source of trouble between defendant and the deceased.

John Maroney, in his evidence at fol. 947, tells of the defendant being at his saloon and deceased coming there after him on several occasions and taking him home.

John Burkhart, in his evidence at fol. 1336, tells of seeing defendant at the Chippewa market and deceased taking him home.

The killing of Matilda Ziegler, otherwise called Matilda Hort, in the manner narrated by this evidence as set forth in this brief, is not controverted on any evidence in the case; there is no ground for any doubt as to the actual commission of the homicide by the defendant; there is no witness that gives any testimony which tends to show that any other person had anything to do with the commission of the crime charged in the indictment. The sole question is as to the mental capacity of the defendant—the ability and power to deliberate and premeditate. There is substantially no evidence to warrant the submission to the jury of the question as to whether on the morning of the homicide, the defendant, Kemmler, was intoxicated. The testimony of eight witnesses enumerated before, shows that on the morning in question Kemmler was apparently sober; there is not a single witness who ventures a contrary opinion, therefore the effect of intoxication with relation to intent is not fairly in the case. The question was, however, very fully and elaborately submitted to the jury with careful instructions by the trial justice, that if they believed, from the evidence that on the morning of the commission of the homicide the defendant was intoxicated, then that fact should be taken into consideration by them as bearing on the intent with which the act was committed, and his ability to form an intent [fol. 1772]. Upon a request made by the defendant's counsel the attention of the jury was specifically directed to this subject [fol. 1785]. The defendant was given the benefit of this question, although, as stated, there is in the case no evidence to warrant its submission to the jury.

The mental capacity and power to deliberate is the only question of fact which the jury had to pass on. Upon this branch of the case the People showed by a number of merchants, all of whom are reliable business men, that Kemmler was a shrewd and prudent business man, and that he managed his affairs in a manner which commended itself to their judgment. The defendant called several witnesses to swear to Kemmler's drinking. They are, as a rule, drunkards themselves, and if their evidence is entitled to any weight, if their opinion is entitled to any respect, it would tend to establish their responsibility of these very witnesses for their own acts; they are not in a position to give a rational opinion. The evidence received has been fully reviewed and the case was elaborately and fully submitted to the jury with fair and impartial instructions from the trial justice. The verdict of the jury was a necessary conclusion from the facts presented. The case requires no argument; the facts are eloquent in themselves.

EXCEPTIONS.

The first exception to the admission of evidence is found on page 27, folio 106. A question was asked of Dr.

Charles S. Jones concerning an operation which was performed upon the deceased, the taking out of a piece of bone from the skull. The witness was allowed to answer and said: [fol. 107] "Doctor Park was called, I think he will give the reasons." It will be observed that this answer does not respond to the question; the subject matter of the inquiry was not pressed, and in consequence the exception is of no avail. It was quite proper to show what operation was performed upon the deceased, if any, and the object and purpose of the operation.

The second exception is found on page 63, folio 247. An inquiry was made of the witness Mary J. Reid as to whether or not she ever heard the defendant and the deceased quarreling prior to the homicide. This evidence was objected to and was received by the Court. Witness made an answer at folio 248 which was a conclusion. This evidence was stricken out and the witness then, more in detail, answered the inquiry put to her by the District Attorney. The quarreling which was narrated occurred within a short time prior to the homicide, and it was competent to show the relations existing between the deceased and the defendant; it was received by the Court for that purpose [fol. 247].

The third exception in the case is found on page 116, folio 460. The witness De Bella was asked by the District Attorney at folio 459, if he ever heard the defendant talk concerning his wife's desire of returning to Philadelphia. He answered the question in the affirmative. The next inquiry was as to the time when he had heard this conversation. He says "This was three or four days before the 29th;" that being the day of the homicide. The question was then put: "What was it?" This was objected to and was received by the Court. The defendant excepted to its admission. The evidence was important in its bearing upon the relations existing between the defendant and deceased. It tended to show that within a few days prior to the homicide there was a controversy between them concerning the deceased's proposed return to Philadelphia. It bore upon the relationship existing between the parties, and points an incentive to the commission of the crime charged against the defendant. It was therefore competent.

The fourth exception is found page 119, folio 473–475. The witness De Bella was testifying with relation to some conversation he had with the defendant. The narrative is considerably mixed, and it appears to have been an incoherent conversation influenced by liquor. The Court allowed the District Attorney to ask certain questions tending to draw out a conversation [fol. 475]. The answer which the witness was to make could not reasonably be anticipated. When the evidence was in, the witness then proceeds to state the conversation [fol. 477]. "Oh," he says to me in a kind of low voice, "You put me in the hole, and I am blamed if you put me in the hole any more." De Bella asked the defendant: "Tell me how I put you in the hole, I would like to find out." The defendant replied: "You know as well as I know." De Bella then proceeds to state: "I could not get head nor tail of what he said" [fol. 478]. In this conclusion De Bella was manifestly correct: neither he nor anybody else could make head or tail of the conversation which he purported to narrate. Defendant's counsel then moved to strike out the testimony, and the Court granted the motion; so that no prejudice resulted to the defendant by the temporary admission of the evidence.

The fifth exception is found on page 121, folio 1481. De Bella was further examined and was asked if the defendant had ever said anything concerning his former life at the city of Philadelphia. This was objected to by the defendant, but was received by the Court. The answer was a statement to the effect that the defendant was always well behaved when living at Philadelphia. It certainly was in his favor, and could in no wise prejudice him. It was, however, entirely proper and competent to show the relationship of the defendant and deceased, and the inquiry was prompted with a desire to draw out from the witness what statement, if any, had fallen from the lips of the defendant concerning his former life and his relationship with this woman.

The sixth exception is found page 133. De Bella is now being questioned upon a re-direct examination by the District Attorney. The subject of the inquiry is certain new matter which the cross-examination had developed; it is objected to by the defendant upon the ground that De Bella is a witness of the people, and they could not re-open the examination. The evidence elicited was as to the defendant's going without eating for a period of four or five days at a time. The fact of his going for a number of days without food was drawn out by defendant's counsel [fol. 519,] and the District Attorney was seeking to test the accuracy of the witness' memory. The evidence which was received at folio 513, on the line of inquiry, was competent to explain and show the general habits and mode of life, and particularly to explain his previous evidence. At page 136, folio 541, the objection is to the same class of evidence again. and the same reasoning applies.

The seventh exception in the case is found on page 322, folio 1286. Charles O. Rogers was being examined by the people concerning the business dealings and transactions of the defendant with him. The witness said that the defendant would come along and buy lots of fruit; that he would buy a lot and make good fair offers for it, and the witness added: "He knew what he was doing." The defendant's counsel moved to strike this out. The Court ruled that if it was meant simply in the sense of an opinion that he understood the quality of the goods he was buying, it was competent. The witness answers this in the affirmative. The defendant excepted and also moved to strike out the evidence. The Court grants the motion at folio 1287, and with the granting of this application, the exception fell.

The eighth exception is found on page 350, folio 1397. Henry Kemmler was being examined by the defense. Upon the cross-examination the District Attorney asked witness if he did not have a conversation with the defendant in the jail after his arrest, which conversation the witness had given to the newspapers; in this conversation Henry asked his brother why he had killed this woman? The defendant's counsel objected to the question being put to the witness, upon the ground that it was no part of any evidence that they had drawn out and not a proper subject of cross-examination. The evidence was entirely proper and competent. The declarations of the defendant as to how and why he killed the deceased, when made not through the influence of fear or threats, are entirely competent against him. The admission of this evidence at this point of the case, was entirely within the discretion of the Court, and its receipt, under the circumstances, indicates no error. It was entirely competent for the Court to allow the evidence to be received. There is no argument to be drawn from its admission out of the regular order of proof, which in anywise prejudices the defendant, nor was it claimed in the exception suggested to the Court, that its admission, out of the regular order, would prejudice their rights.

The ninth exception is found in the evidence of Dr. William C. Phelps. It was objected to the evidence of this witness, where he was asked to state what examination of the defendant he had made, that the relation of a physician and patient arose and existed between the witness and defendant; and upon the further ground that defendant being in prison the data furnished the doctor by the defendant was compulsory. The objection is fully stated at folio 1595. It is repeated at folio 1598, and the decision of the Court is expressed in the case at folio 1606. The Court allowed the District Attorney to interrogate the witness, and draw from him an opinion as to the mental condition of the defendant at the time he saw him, without going into details of questions and answers in conversations which they had. If this rule, adopted by the Court is not proper, then there can hardly be suggested a case in which expert evidence may be given by the People concerning the mental condition of a prisoner. A District Attorney, under the authority vested in him, directs a competent physician to examine a prisoner charged with a capital offence with a view of ascertaining his mental condition. The Doctor goes to the jail, states the relationship and authority under which he goes there; asks certain questions which he deems important. The objection to the admission of the testimony of a physician is predicated upon the confidential relationship. His pre-possessing the prisoner with the knowledge that he is sent by the District Attorney for the purpose of ascertaining his mental condition, negatives the very idea of a confidential relationship existing between the defendant and the Doctor.

It will be observed that the testimony given by Dr. Phelps does not in any manner assume to give evidence with reference to a single transaction that occurred at the examination of the defendant at the jail; although he was permitted by the Court to express his opinion based on the results of his examination there, the doctor was not asked and did not give any evidence or opinion. The evidence of the doctor was not based or framed upon any inquiry made by him personally of the defendant. The evidence stated by the doctor was simply a description of the defendant as he sat in the court room [p. 403]. He answered certain hypothetical questions put to him [p. 404–5]. By reference to folio 1621 it will be observed that the District Attorney expressly stated that he avoided going into any of the questions concerning the examinations at the jail so as not to place upon the record any questions for the defendant's counsel to quibble over in an appellate court. If the testimony of Dr. Phelps is not competent, it would not be proper for a physician to examine a person while a trial was in progress by watching and observing his actions and conduct, and then go upon the stand and testify. No such rule exists, and no such construction is warranted by any decided case in this State. When Dr. Slacer, the next witness, was sworn, the same question arose twice [fol. 1646–50], and the attention of the Court is addressed to the fact that at those two points the District Attorney again avoided eliciting from the witness any fact which he discovered upon a personal examination of the defendant. Neither Drs. Phelps or Slacer prescribed for the defendant; it was not suggested to Kemmler that they interviewed him for the purpose of treating any disease or malady. In no sense was the relation of physicians and patients created. The rule laid down in the People vs. Schuyler, 106 N.Y., 298, 304 and 385, is conclusive upon the competency of this evidence.

The tenth exception in the case is found at page 447, folio 1786; it is taken to a refusal to charge in language requested. The defendant's counsel asked the Court to charge that in fixing the grade of crime, with which the defendant was charged, the evidence as to intoxication was *very important* and must be carefully weighed. The Court ruled, in answer to this, that all the evidence in the case was to be carefully weighed, but it was not the province of the Court to indicate to a jury what was important and what was not, and that it was the province of the jury to determine that question. This ruling is in accordance with the well settled rules of law, and requires no discussion.

No other exceptions were taken to the admission of testimony or to the charge.

CONCLUSION.

From all the evidence in the case, it appears that the verdict of the jury was fully warranted; that it was founded upon good and substantial proof, and the judgment rendered upon this verdict and from which the defendant has appealed should be affirmed.

GEORGE T. QUINBY,
District Attorney of Erie County.

Feb. 25/90

Court of Appeals,

STATE OF NEW YORK.

No. 86.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER, *Appellant,*

AGAINST

CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN PRISON, *Respondent.*

RETURN ON APPEAL.

CHARLES S. HATCH, BUFFALO, N. Y.,
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Attorney, and of Counsel for People and Respondent.
A. P. RICH, DISTRICT ATTORNEY CAYUGA CO., AUBURN, N. Y.
GEO. T. QUINBY, DISTRICT ATTORNEY ERIE CO., BUFFALO, N.Y.

Vol. I.

BUFFALO, N. Y.:
PRINTING HOUSE OF JAMES D. WARREN'S SONS,
Office of the "Buffalo Commercial Advertiser."
1890.

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Before S. EDWIN DAY, County Judge of Cayuga County.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,
AGAINST
CHARLES F. DURSTON, AS WARDEN OF THE STATE PRISON AT AUBURN, N. Y. 1

Proceedings before TRACY C. BECKER, Esq., Referee, at the office of Hon. W. Bourke Cockran, in the Equitable Building, 120 Broadway, New York City, Monday, July 8th, 1889, at 12 M., pursuant to an order of 2
reference heretofore made and entered in the above entitled proceeding.

Appearances:

On behalf of the Relator:

CHARLES S. HATCH, Esq.
Hon. W. BOURKE COCKRAN. 3

On behalf of Respondent:

GEORGE T. QUINBY, Esq., District Attorney of Erie County, N. Y.

WILLIAM A. POSTE, Esq., Deputy Attorney-General of the State of New York.

A. P. RICH, Esq., District Attorney of Cayuga County, N. Y.

4 Stipulation entered into in writing, to be attached to the proceedings herein, as to compensation of Referee, stenographer's fees, and the signing of testimony by witnesses.

HAROLD P. BROWN, called as a witness on behalf of the relator, and being duly sworn and examined by Mr. Cockran, testified as follows:

Q. What is your occupation?

5 A. I am an electrical engineer.

Q. Are you a member of the Institute of Electrical Engineers?

A. No, sir.

Q. Have you studied in any institution of learning that is devoted to the teaching of that science?

A. I have been engaged in the electrical business for the past 13 years, practicing as an electrical engineer before any courses were started in the colleges.

6 Q. There is in existence an institute of electrical engineers?

A. Yes, sir.

Q. And it is in all respects similar to the Institute of Civil Engineers?

A. Yes, sir.

Q. And being a member of the Institute of Electrical Engineers is a badge or evidence of a man's professional standing, just as it is in the case of a civil engineer?

7 A. That may be.

Q. I ask you the question, if being a member of the Institute of Electrical Engineers is not a badge or evidence of a man's professional standing, just as it is in the case of a civil engineer?

A. Some of the prominent electricians of this country I believe are not members of any college.

Q. I am speaking of electrical engineers.

A. I think it is simply a matter of choice whether or not a man joins the society or not.

Q. You know, as an electrician, whether that is so 8
or not, whether a membership in the Institute of Electrical Engineers is not a badge or qualification as an electrician, just as much as a membership in the Institution of Civil Engineers is a qualification for a civil engineer?

A. I believe in a technical sense.

Q. I mean among electricians is not a membership in an institute of electrical engineers recognized as a badge or qualification just as a membership in the In-
stitute of Civil Engineers. 9

A. Not necessarily.

Q. You say you have been an electrician 13 years?

A. Yes, sir.

Q. What were you doing before that?

A. I was in school before that.

Q. Your first occupation was as an electrician?

A. Yes, sir.

Q. Where was your first occupation?

A. In Chicago, Ill. 10

Q. In what capacity were you employed there?

A. My first occupation was in regard to one of Mr. Edison's early inventions—the electric pen. For three years I had charge of that and also the early telephone apparatus and telegraph, at the factory of the Western Electrical Company, Kinzie street, Chicago.

Q. My question was—I was trying to find out how you became an electrician. Your first connection with
electrical matters, as I understand, was that you had
charge of Mr. Edison's electric pen? 11

A. Yes, sir.

Q. That was about 13 years ago?

A. Yes, sir.

Q. Prior to that, did you have any training of any character as an electrician?

A. I had a high school education and prepared for the technical examination at Harvard, but the fire of 1874, which crippled the family finances, coming after

12 the fire of 1871 at Chicago, made it impossible for me to afford a college course.

Q. So that beyond the ordinary high school and preparatory course you had no special training in electrical matters?

A. Not up to the age of 18 years.

Q. In what capacity did you have charge of this electric pen—anything more than selling it?

A. Yes sir, both in the method of adjustment and as well the sale.

13 Q. You did not have anything to do with the invention of it?

A. No sir, that was Mr. Edison's invention.

Q. When you speak of the adjustment of the pen, do you mean anything more than the adjustment of it after the plan by Mr. Edison?

A. No, sir.

Q. That did not require any skill, to arrange an electric pen after you were shown how to do it?

14 A. Not after you were shown how to do it. Skill was required, however, in other lines—the adjustment of the telephone and telegraph apparatus.

Q. Now, how long was it after you had charge of the pen that you had charge of the other apparatus?

A. Almost immediately.

Q. What other arrangements did you have charge of?

A. I had charge of the business of George H. Bliss & Co., George H. Bliss & Co. then being the agents for
15 the Western Electrical Company, so that it was within my province to sell electro-medical apparatus as well as to adjust it, and also to instruct physicians in its use; also the telegraph apparatus and early telephone.

Q Now, in connection with this electro-medical apparatus and the telephone and telegraph, did you have anything more to do than show the method they should be adjusted in order to get them working?

A. I frequently designed, during the period spoken

of, special arrangements for electro-medical apparatus, 16
which were approved by physicians.

Q. Were they inventions?

A. Hardly inventions, but designs for convenience and for certainty of application by physicians that had no special training in electricity.

Q. I do not exactly understand what you mean. Do you mean that you took certain electrical elements and combined them so as to reach results that had not been heretofore discovered, or simply invented more 17
expeditious or better means of applying them?

A. More certain means of applying them.

Q. You do not claim that you at that time invented anything?

A. No, sir.

Q. Or did anything more than apply the machinery or inventions of other persons?

A. No, not at that period.

Q. How long did that continue?

A. For about three years. 18

Q. And after that where were you engaged?

A. Nearly five years with the Brush Electric Light Company, having charge of their northwestern business, both as an electrical expert and as salesman.

Q. I understand you that while you were engaged in discovering new combinations, or in perfecting or applying new arrangements, you were also engaged in the business of selling, were you not?

A. Yes sir, but not entirely. 19

Q. I understand you to say you were engaged a part of the time in discovering new principles or combinations, and when you were not engaged in that you were engaged in selling instruments?

A. Yes, sir.

Q. Also as salesman of the Brush Electric Light Company?

A. Yes, sir.

Q. How long did you continue at that?

20 A. Five years.

Q. Does that bring you down to the present time?

A. No, sir.

Q. Where were you after that?

A. Since then I have been in the business of elec-
trical engineer on my own responsibility; for about
three years as electrical expert of a company organ-
ized to handle my own inventions in electric lighting,
and I obtained a large number of United States
21 patents on various inventions for electric lighting and
for the distribution of light and power.

Q. Is that what you are doing now?

A. I at present am entirely independent of any company.

Q. You are managing your own inventions?

A. My particular business at present is designing
apparatus for people who require it, or standing as an
expert between the purchaser of electric apparatus and
the company supplying them; or, any design of
22 electric apparatus, or to see whether or not it comes
up to the requirements of the specifications, or in pur-
suing original inventions in regard to electricity,
or as an expert in advising in matters in which elec-
tricity is used.

Q. Your training was acquired in the manner you have described?

A. Not only that, but from the laboratories of the
various companies and my own, and not only that,
23 but in the workshop, so that I am able to earn a liv-
ing as a mechanic, handling a lathe, drill, press or
milling machine, or I am able to manufacture or re-
pair any of the electric apparatus, or electrical ap-
paratus. There are few of the laboratories of this
country which I have not seen and visited, and in
many of them I have been engaged in original work.

Q. Has your training as an electrical expert been acquired in the manner you have already described?

A. Of course, in reading I have kept up with the developments of the times, and there have been no 24 electrical apparatus invented and put on the market which I have not informed myself of.

Q. You are not a physician?

A. I am not a physician.

Q. Or a surgeon?

A. No, sir.

Q. And you have got no medical knowledge?

A. Except in an electro-medical way.

Q. Describe what you mean by an electro-medical manner. 25

A. Except in a general way, except as to the application of electricity to the human body.

Q. That is to say, you have seen experiments of the application of electricity to the human body?

A. Yes, sir, and I have taken part in them.

Q. You have no knowledge of the particular nerves affected by the application of electricity to the human body?

A. Yes, sir, I have.

Q. In the case of an electrical shock that is projected against the body of a culprit, what particular nerve is going to be affected? 26

A. That would depend upon the point of application altogether.

Q. Are you able to tell us, without giving the part of the body coming in contact with an electric current, are you able to describe the effect?

A. Yes, sir.

Q. Describe the nerves affected, the organism affected? 27

A. I could describe the effect of the current upon the human body.

Q. You know enough about anatomy and the structure of the human body to describe correctly the effect of the application of electricity?

A. Not to name the various nerves, but to describe the effect produced by electricity upon living organisms through which a current has passed.

28 Q. How could you describe it unless you were able to give the names of the nerves and describe them?

A. There is no necessity of naming the particular nerves when the effect on one nerve does not differ from the effect on another. But the effect of an electric current of a given intensity and volume would be described in a general way.

Q. It is with that amount of knowledge and with that view of the matter that you have made your recommendations to the Medico-Legal Society? With 29 that conception of its effect that you now describe, that you made your reports to the Medico-Legal Society?

A. The report to the Medico-Legal Society was based on a long series of experiments.

Q. Was it with that conception of that′ particular subject that you made your report to the Medico-Legal Society of the effect of an electrical current upon the human frame?

30 A. What conception?

Q. The conception you have just described; that it was not necessary to know the nerve to be able to describe this effect, so long as you could show the fact?

A. The report to the Medico-Legal Society was purely on the electrical side.

Q. I did not ask you what the report was. I asked you if at the time when you made that report you had just the same amount of knowledge on the subject you have now?

31 A. I made no report.

Q. You conducted some experiments?

A. Yes, sir.

Q. Did you report them?

A. Not to the Medico-Legal Society.

Q. Did you to anybody?

A. I reported the exact condition of the experiments which I undertook. The electrical resistance of the subject and the weight and size of the subject

and the electro-motive force used. And of course as 32
the electro-motive force and resistance can be used to compute the current passing, that would go without saying. That report was published in the *Electrical World* and was addressed to no particular person, company or society.

Q. Why did you call it a report. What do you mean?

A. A report of the experiments.

Q. To whom?

A. To the public. 33

Q. You did not make any report to the Medico-Legal Society?

A. No, sir.

Q. Nor to any other society?

A. No, sir.

Q. You simply published the series of experiments made by yourself?

A. Yes, sir.

Q. I have been led to ask you by what Mr. Quinby 34
said that you were an Electrical Expert who made the experiments for the Medico-Legal Society?

A. Yes, sir.

Q. You did make these experiments for the Medico-Legal Society?

A. Yes, sir.

Q. But you made no report about it?

A. The report was made by Dr. Peterson, who assisted me on the physiological part of my experiments. He took care of the physiological part and I 35
took care of the electrical portion.

Q. Did you make the report to the Medico-Legal Society?

A. No, sir.

Q. Nor to any other body?

A. No, sir; only the public report.

Q. You published an account which you call a report for the general information of the public, of certain experiments made by you?

36 A. Yes, sir.

Q. I understand that you have furnished certain instruments or machines for the execution of persons being condemned to death by electricity?

A. Yes, sir.

Q. Those were furnished on the requisition of whom; who made the requisition?

A. My contract was with General Austin Lathrop, Superintendent of State Prisons, of the State of New York.

37 Q. You entered into a contract with Gen. Austin Lathrop and in accordance with that contract you have furnished certain instruments?

A. Yes, sir.

Q. Could you describe them now?

A. Yes, sir.

Q. Describe them.

A. Each prison, at Sing Sing, Auburn and Clinton, is to have erected in a convenient place, where power
38 can be applied from the engine already in use, a dynamo of alternating current, type, size and capacity known in the trade as a 650-light machine.

Q. You say that each of these prisons is to have one?

A. Yes, sir.

Q. Has each prison got one?

A. All three have been purchased and one is in Auburn now.

Q. Confine yourself to that one in Auburn. That
39 is actually there?

A. Yes, sir; the other two are on the way.

Q. The other two will be precisely the same when furnished as that at Auburn?

A. Yes, sir; it is the alternating current machine of the capacity known to the trade as a 650-light machine, made by the Westinghouse Electrical Company, of Pittsburgh, Pa. There is an exciter for charging the fields; a rheostat for inserting resistance in the

circuit of exciters of the field magnets of large machines. 40
The exciters deliver a continuous current,
which is used, as I have said, for the purpose of energizing
the field magnets of large alternating current
machines. The alternating current machine is to be
operated at a speed which will give by varying the resistance
in the rheostat an electro-motive force from
one thousand to fifteen hundred or two thousand volts,
and the current delivered by the machine when in
service, of course, would be a much larger current than
required for this purpose, but that surplus does not 41
enter into the consideration. There is also a Wheatstone
bridge apparatus supplied for obtaining exactly the resistance
of the subject, so that, if any variation of resistance
above the normal is encountered, the pressure of
alternating current of the Westinghouse machine can
be correspondingly increased or diminished. There is
also a volt meter of the type known as the Cardew
volt meter, with a resistance in its circuit to enable it
to read from one thousand volts up to eighteen hundred 42
or two thousand volts pressure, so as to indicate
the absolute pressure at any moment of a large alternating
current machine. There is also a meter which
will be placed in the circuit with the condemned
criminal, so that the amount of current which flows
through him during the time of contact can be accurately
recorded. There are also switches for the closing
of the circuit upon the subject, electrodes for making
the contact with the subject, also with the insulated
wires for carrying the current from the dynamo 43
room to the room where the execution is to take place.

Q. This apparatus is now ready to be applied at Auburn?

A. Yes, sir.

Q. You have seen it?

A. I have not seen it at Auburn.

Q. Where did you see it?

A. I have not seen the apparatus at all.

44 Q. You merely assume that this is the kind of apparatus to be used?

A. I have purchased and paid for it.

Q. And assume it will be used for that reason—because you have paid for it?

A. No, sir.

Q. Have you shipped it?

A. I have not.

Q. Because you have purchased and paid for it you assume it will be delivered just as you have described? 45

A. Warden Durston has written me that it is there.

Q. Do you suppose that Mr. Durston will be able to describe it as you have described it?

A. I have no knowledge as to what his knowledge is.

Q. Would any average citizen be able to describe it?

46 A. Not unless he was posted in electrical matters.

Q. Will you go on and describe how you intended criminals to receive the current?

A. That is not a matter for me to decide.

Q. So you do not know how it is going to be applied?

A. I know how the gentleman in charge intends to apply it, but as far as the application of the current to the human body is concerned, I have made no recommendation.

47 Q. You said there was some kind of meter, I think, which was to show in case the resistance was greater than anticipated, and there was the necessity for increasing the current. Am I correct?

A. That was simply supplied so as to be able to meet any contingency that might arise.

Q. Any contingency that might arise. What contingency might arise, in your mind?

A. The slipping of a belt would diminish the elec-

tro-motive force by running the machine at a lower 48
speed.

Q. What do you mean by resistance greater than anticipated?

A. There has been a great deal of newspaper discussion as to the varying resistance of the human body. Although electro-medical men, in a number of measurements, have found that there was an average of about twenty-five hundred ohms, still, to meet that objection, which seemed a valid one to Gen. Lathrop,
and possibly some of the other State officials, ample 49
leeway is given to increase the pressure if desired.

Q. You say that electro-medical men believe that resistance to the human body is twenty-five hundred ohms.

Q. It is so stated in the text book?

A. Yes, sir; it is so stated in the text book.

Q. What text book?

A. I have a memorandum of a German text book
which I can look up and bring to you. 50

Q. Is that the only text book you have in your mind?

A. In which the average is given?

Q. Yes, sir.

A. Yes, sir.

Q. What do you mean by electro-medical men?

A. Physicians who have made a specialty of electro therapeutics.

Q. Would you call Dr. Jacoby such a man? 51

A. I have heard of him, but not as an electrician. I have no knowledge of his standing other than as a physician.

Q. Don't you know that all physicians have made more or less study of electricity and use it in their profession?

Q. Well, I have encountered a great many physicians who were not posted in electrical matters.

Q. Don't you know that electricity has come to be

52 a standard feature in medical science and applied for the relief of pain?

A. Yes, sir.

Q. Do you know that Dr. Jacoby stands very high?

A. Yes, sir; he stands high as a physician.

Q. Would you say that he does not possess any knowledge of electro therapeutics?

A. I have no knowledge in that respect.

Q. Name a few men who are familiar with the electro-medical experiments.

53 A. George M. Beard, of New York, and his partner, Dr. Rockwell, who also stands high.

Q. Anybody else that you know of?

A. I do not, for the moment, recollect any other one.

Q. There is what might be considered a large tribe?

A. No, sir.

Q. According to that description there are very

54 few?

A. Yes, sir; very few make a specialty of electrical treatment.

Q. Now this experiment which was made by the State authorities, showing this varying resistance of the human body, resulted in the suggestion that a motor be supplied, which in case of any unforseen resistance would supply an additional current. Am I right?

A. Not exactly that.

55 Q. Describe it.

A. The dynamo is ordinarily supposed to run at a speed and with the amount of current flowing through the field of the magnets that would give an electromotive force at the terminals of the dynamo to give one thousand to twelve hundred volts in order to meet any contingency that might require a higher pressure, or might reduce the pressure through lack of speed, or slippage of the belts or something of that kind. It was thought necessary to get a surplus beyond what

we believe from our experiments to be absolutely 56
necessary.

Q. The resistance by whom or what? You say that is in case of resistance?

A. Resistance in the line or at the electrodes.

Q. Of what, or by what?

A. Possibly resistance in the human body.

Q. In the event of resistance of the human body being so great that the current originally started was not sufficient to kill, then the meter would show 57
how much more was necessary?

A. No, sir.

Q. And if it would show that, would you have put any more current?

A. No. In case a measurement was made by a Wheatstone bridge and galvanometer, using a current which is so feeble as to be imperceptible to the person through whom it flows, should develop the fact that any abnormal resistance was encountered, so that instead of being twenty-five hundred ohms his resistance 58
should run from twenty thousand, twenty-five thousand or thirty thousand ohms, then the physician in charge might, at his discretion, deem it necessary to increase the pressure at the dynamo terminals before applying the lethal current to the criminal.

Q. Does this Wheatstone bridge or this instrument show the resistance before or afterwards?

A. Before the application of the current from the dynamo, an infinitesimal current from a small battery 59
is applied to the criminal, or to the subject, and the indication of the current determined by adjustment of a known resistance until the galvanometer needle which will turn to one direction if the known resistance be higher than the criminal, or to the other direction if less, and this varied until the galvanometer needle settles at the centre. We then know that the resistance which we have adjusted is exactly the same resistance as that encountered by the current from the battery passing through the criminal.

60 Q. Do you mean to say that by that means you can always ascertain or measure the actual resistance of the human body?

A. Yes, sir.

Q. So that you can tell exactly his resistance?

A. Yes, sir. We can get the maximum measurement of it exactly.

Q. Then, will you first electrify the criminal for the purpose of finding out what shock will kill him when the needle finally settles down to a point; then 61 you turn on the deadly current—is that what you intend to do? You first electrify the criminal, send an electrical fluid through him in a playful kind of a way, in a harmless way, and see how the needle works, and when the needle finally comes to a point which you consider indicates the pressure at which you can kill him, then you turn on the deadly current and kill him?

A. No. It simply indicates his resistance to the 62 electrical current.

Q. Let me ask you right here what is resistance?

A. Resistance is the friction, I might put it in that way, that must be overcome by an electrical current.

Q. In what way?

A. Well, that must be encountered by an electrical current in passing through the conductor.

Q. Then you intend to treat the body as a conductor?

63 A. Yes, sir.

Q. That is the whole thing?

A. Yes, sir.

Q. And these preliminary exercises are to find out what kind of a conductor he is. That is it in a plain language?

A. Yes, sir.

Q. You first send a current through him and find out what kind of a conductor he is, then you put through a current strong enough to develop up him into the fullest kind of conductor, which you conceive would be fatal to him? 64

A. You make no distinction between the battery current, which is imperceptible, and which can be applied in a very few seconds, and without the knowledge of the criminal.

Q. I did not ask you that. I ask you if these preliminary exercises are to find out what kind of a conductor he is. You first send a current through him to find out what kind of a conductor he is, and then you rise to the occasion and put it through strong 65 enough to develop up him into the fullest kind of a conductor, which you conceive would be fatal to him —that is your understanding of this machine which you have furnished. Is that a correct and fair description?

A. Hardly.

Q. Tell us in what it is unfair?

A. The human body, in its composition, containing saline fluids, represents a conductor, and the sending 66 of a current through it does not make it a conductor or develop it up as a conductor; it uses it as a conductor.

Q. And with that exception my description is correct? You object to my describing this machine as making the body a conductor, but do not object to its being used as a conductor—is that a correct description?

A. We use the body as a conductor and obtain accurately its resistance. That can be done as accu- 67 rately as the weight of the body can be obtained, with this fact in view, that whatever result we obtain is the maximum and not the minimum, for the reason that the longer the current flows, even though it be a very small battery current, the more the saline fluids of the body are brought up, by electrical decomposition, into the skin, thus reducing the resistance of the skin, so that the longer the current flows or the greater the

68 current that is applied the less the resistance will become.

Q. What do you mean by unforeseen contingency?

A. An attendant carrying a ladder through the hall, we will say, might break the wire, or the partial breaking of the wire.

Q. Would the atmospheric conditions affect it?

A. That would have little or no effect.

Q. And when you speak of unforeseen contingen-
69 cies, such as resistance and a ladder falling against the wire, you put a machine in to guard even against these accidents?

A. Yes, sir. So that whatever contingency might arise, there is sufficient reserve above the amount necessary to produce instant death.

Q. Suppose any of these contingencies arose, or both of them, and death did not ensue, can you tell us what effect it would have upon the subject while the doctor would go around to increase the current—what
70 would be the condition of the criminal?

A. You will have to describe the condition before I can venture an opinion.

Q. You would be able to tell us what the condition would be if there was an unforeseen contingency, so that death did not ensue and the charge originally applied was not sufficient and it became necessary to increase the charge. Could you tell us what the condition of the culprit would be then?

A. I think you have not quite grasped my ex-
71 planation.

Q. I ask you if any one of these unforeseen contingencies arose that you have described, or unexpected resistance on the part of the body so that death did not ensue, what would be the condition of the patient while the doctor, or person in charge, would be increasing the electrical current?

A. The measurement is made before the fatal current is applied, and if then a too high resistance is encountered, instead of applying the fatal current and 72 giving the man needless suffering, the intention would be to increase the surface of the electrodes, if the resistance was found to be in the subject himself; we would first disconnect the subject and then look to our wires, and if it was outside we would rectify it; if it occurred in the criminal himself we would conclude that the electrodes should be doubled beyond what experience has shown to be reasonable limits.

Q. What experiments have been made that show the reasonable limits? 73

A. In the first place, my experiments during the past year in determining the death point of the continuance and alternating currents, the death pressure on animals, and also in determining from reports of some ninety or more deaths from witnesses about the conditions when these deaths occurred.

Q. Do you have any means of measuring the resistance where the death actually occurred before?

A. No.

Q. Now, is it not a fact that no opportunity has 74 ever been offered to measure the exact resistance, what you describe as resistance of bodies, before death, except in the experiment you made upon animals and beasts?

A. I have occasionally made a practice of measuring human beings who were living in order to get approximately the resistance.

Q. Don't you know that my question was to find out the exact death point? Did you ever have an 75 opportunity of testing in advance, except in the case of animals or beasts?

A. The resistance does not determine the point of pressure.

Q. Do you know what pressure it would take to kill a man in advance, anything beyond the average measurements you have made?

A. Yes, sir; this fact, there are a number of cases

76 of which I have record in which Westinghouse dynamos of exactly the same size and pressure as the one purchased for the State, have produced fatal results when the maximum voltage or maximum pressure of these dynamos was 1,000 volts. In one instance there is a case in point: A fireman of the name of James Carney was killed in the last week of April, in Pueblo, Col., while on duty at a fire; while stepping in a pool of water he touched a Westinghouse wire, and we know this—that that pressure could not have exceeded 77 1,000 volts; and we know that the resistance through his wet shoes as well as through his body, and through the contact of the wire he took, the insulated wire, must have been greater than any resistance in which the plate, placed against the whole surface of the foot, well moistened with conducting fluid, and in which a large electrode is placed on some other part of the body; therefore, the inference is, if 1,000 volts will kill a man instantly through that high resistance, by applying 78 it to the body itself the chances are that it will kill without doubt.

Q. Is that one of the strongest cases you know of?

A. No, sir.

Q. Give us another. This you did not see yourself at all?

A. I can obtain witnesses if necessary; I did not see it.

Q. My question was if you could tell us a single instance which came under your observation where 79 the forces necessary to produce death were outside of any condition on anything except beasts?

A. No; none of the deaths of human beings have been premeditated.

Q. Now in all instances in which death has occurred from contact with electrical wires, have you any knowledge of the physical condition of the person before that contact occurred?

A. No, sir.

Q. You know nothing as to the condition of the body, as to whether it was in a condition which would tend to make it sensitive to a shock, or in a condition which would enable it to make a prolonged resistance at the time of the electrical shock? 80

A. I not only know nothing about that, but I doubt whether the condition—

Q. Did I ask you anything about that? I asked you if you know anything as to the condition of the body, as to whether it was in a condition which would tend to make it sensitive to an electrical shock, or in a condition which would enable it to make a prolonged resistance at the time of the electrical shock? 81

A. I know nothing in regard to the condition of the bodies.

Q. I understand you to say that some physician or some text-book described the average resistance of the body as twenty-five hundred ohms?

A. Yes, sir; the average resistance. 82

Q. And from that, don't you understand that resistance varies in different persons?

A. Certainly.

Q. And it is because of that well-known variance in the resistance of the body that you have devised this plan in your machine, or the machine which you have furnished the State, first to send a gentle current through the criminal in order to ascertain what his resistance is?

A. Not only that, but to keep a scientific record of the fact. 83

Q. Was it a matter of science or was it to kill him?

A. I have not done it yet.

Q. You have supplied the machine by which this man Kemmler is to be killed—it is part of your scheme?

A. Yes, sir.

Q. You have made your contract with the State

84 Prison Superintendent, as I understand it, and furnished the machine by which this man Kemmler and all ohers will be executed, and you have received an acknowledgement of its being at Auburn from the Warden of the State Prison?

A. Yes, sir.

Q. Just such a machine as you have described?

A. Yes, sir.

Q. And you could give us a drawing of this machine? 85

A. Yes, sir; I can give you a cut.

Q. Can you furnish us with a drawing which would show the man as he is being delivered over to his fate, what things would be touching him, what machinery would be working, and what things would be surrounding him?

A. Yes, sir.

Q. And will you furnish us such a drawing?

A. Yes, sir.

86

Proceedings of Tuesday morning, July 10th, 1889.

Appearances the same as before.

Harold P. Brown, re-called for further examination by Mr. Cockran:

87 Q. Yesterday in questioning you as to your acquaintance with electrical matters, I meant to ask you if you have any certificate of qualification from any institute of any kind devoted to the instruction of pupils in electricity?

A. No, sir.

Q. And your qualifications are substantially such as you have described, self-acquired?

A. Acquired in practical experience for thirteen years.

Q. You have told us, I think, of some six or seven persons that have been killed by this electrical current, or you believe to have been killed? 88

A. I had a list of ninety-one persons killed by electric-lighting current.

Q. Do you swear to that, or do you believe it? How do you know it?

A. Some of them I know from my own examination of the cases.

Q. In your examination of the cases, of the persons themselves? 89

A. Or persons who witnessed it or at the coroner's inquest or the report of the autopsy or from people connected with the company whose current was at fault or witnesses of the affair.

Q. I understand you now to say that your information was entirely based upon reports or from information which you obtained from bystanders or through information you have been free to consult?

A. Yes, sir. 90

Q. You did not see the cases?

A. Not when the current was received.

Q. And you don't know anything about the conditions under which the current was administered?

A. Except from the description given by witnesses.

Q. Did you ever hear of any person coming in contact with a current without being killed?

A. Time and time again. I myself have received severe shocks. 91

Q. I am speaking of these particular currents in some instances. Have you ever known of a person having received a current which in these instances was fatal, having been received by other persons without fatal results?

A. There are many cases which have been brought to my knowledge and one happening to myself.

Q. Have you known of any cases in which a current, or the current which in these ninety-one cases

92 was fatal, of a similar current having been received by a person without fatal results. Have you known of such cases?

A. Not the full current or the full pressure.

Q. Will you swear there was or there are any such cases or whether any such cases have occurred?

A. That, of course, is impossible to do.

Q. And your answer is simply as far as you know?

A. So far as any records, so far as I know.

93 Q. Do you mean to say there are any records, or, so far as you know, of any records?

A. So far as I know of any records.

Q. When did you first become in any way identified with this system of experimenting upon animals to ascertain how they were killed by electrical fluid?

A. In June and July of last year I began a series of experiments, not having any reference to electrical execution, but to determine as nearly as possible the comparative danger between the two different classes
94 of current, one of which, the alternating, had been held up and is now being held up as being absolutely safe, and my motive was—my attention was first called to the matter of electrical execution in September or October when Dr. Frederick Peterson, who assisted me in my experiments both at Mr. Edison's laboratory and at the Columbia College laboratory, and who took charge of the physiological part of these experiments, and made the dissections and noted the physiological
95 phenomena which appeared, was appointed on this committee of the Medico-Legal Society.

Q. You are talking about a committee of the Medico-Legal Society. I ask you, when did you first become in any way identified with this system of experimenting upon animals to ascertain how they were killed by electrical fluid.

By the Referee:

Q. You began your experiments with regard to the effect of the electricity in June or July, 1888?

A. On animals: on killing animals. 96

Q. Are you connected in any way with any of the electric lighting companies?

A. No, sir.

Q. Or have you any connection with the Edison company?

A. No, sir.

Q. Or Mr. Edison?

A. No, sir, except a personal acquaintance. I have received a great many favors at his hands; it is entirely a personal friendship. 97

Q. You had made the statement that the alternating current used by one of the electric lighting companies was dangerous and that statement has been attacked?

A. My statement was that the high tension alternating current, not referring to any company, was dangerous.

Q. Was that a current used by any particular company? 98

A. It is used by several.

Q. Mr. Edison is connected with an electric lighting company?

A. Yes, sir.

Q. And that company uses another current which is not deadly in your judgment; is that so?

A. Yes, sir.

By Mr. Quinby: 99

Q. Do you mean not deadly or not dangerous?

By Mr. Cockran:

Q. It is not dangerous?

A. I will have to define between the two types of currents used by Mr. Edison.

Q. I don't care about that. All I want to know is this fact, that the current used by the Edison Electric

100 Lighting Company is a different current from this which you describe as dangerous?

A. Yes, sir.

Q. That is correct?

A. It is different from the alternating current.

Q. It is different in that it is not dangerous?

A. The standard Edison current is considered not dangerous.

Q. You take a good deal of interest in that question, don't you?

101 A. I do, naturally.

Q. Why naturally?

A. Because I have been attacked by a number of prominent men in public letters, which were read before the Board of Electrical Control, holding me up as misrepresenting and being without any electrical knowledge and being owned by several different electric lighting companies, and the statements were reiterated that this current, which I had described as

102 dangerous, was absolutely safe and perfectly harmless.

Q. And thereupon you proceeded to make experiments for the purpose of demonstrating that this other current used by these other electrical lighting companies was dangerous, as you claim, while the Edison company's current was perfectly harmless. Is that so?

A. Not just as you stated it.

Q. In what is it wrong?

A. The Edison company is not the only company which uses a harmless current.

103 Q. What are the other companies which use this harmless current?

A. My experiments were designed to prove that the high tension alternating current was dangerous, and furthermore that a certain device which I had publicly described could be applied to any arc light current circuit and thus could make them fairly safe to the general public.

Q. Your motive was a purely philanthropic one?

A. And to defend my own reputation. 104

Q. A desire to defend your own reputation and this philanthropic desire to insure public safety were the causes which originally led you to make the experiments?

A. Yes, sir. And moreover, at the coroner's inquest at a number of these alleged deaths by electricity, men prominently connected with the electric lighting companies laid the blame on the men's carelessness and claimed that they did not know how a man could be killed, and for the honor of the electric profession 105 it seemed to me that one should have the boldness to tell the truth in the matter, in spite of all corporate interests or what their desire might be.

Q. And you started out—

By Mr. Quinby:

I wish to object to this mode of examining the witness—of cross-examining his own witness upon subjects outside of the question at issue. 106

By Mr. Cockran:

I show you a circular directed to several persons concerning this current, which, I believe, in the letter you denominate as the executioner's current?

A. Yes, sir.

(Circular handed witness.)

Q. Is that a copy of that circular? 107

A. Yes, sir.

Paper marked "Relator's Exhibit No. 1" for identification.

Q. You contributed on the 5th day of this month a letter to the *Evening Post* on the subject of execution by electricity?

A. I sent a letter to the *Post* some time ago, and I

108 was told it was published, but I have not seen it since it was published.

Q. Look at that and see if that is the letter.

Letter shown witness.

A. This is a copy of the letter written by me.

Letter marked "Relator's Exhibit No. 2" for identification.

Q. I show you another letter published in the *Tribune* of yesterday. Do you identify that? 109

Letter shown witness.

A. Yes, sir.

Marked "Relator's Exhibit No. 3" for identification.

Q. I understand you that you commenced these experiments a year ago last summer?

A. Yes, sir.

110 Q. Two years ago now?

A. A year ago now; I can give you the exact date, if you wish, of my experiments.

Witness refers to pamphlet.

The first experiment was made July 10th, 1888.

Q. Had any experiments been made at all prior to that by you?

A. Not in this series.

111 Q. I am not asking you about any particular series, but, up to 1888, had you made any experiments of any character or any kind, to determine what electrical current or what pressure or degree of electrical activity would cause death?

A. Not before that date.

Cross examination by Mr. Quinby:

Mr. Cockran:

I think it proper on the cross-examination of the witness, it should be understood that the cross-examination will extend only to questions which I have asked him about, and I do not wish to make him my witness for any other purpose than the subjects I have questioned him about. 112

By Mr. Quinby:

Q. Where were these experiments made that you have just spoken of?

A. The first series of experiments were made at Mr. Edison's laboratory at Orange, New Jersey, and 113 the second series of experiments were made in the lecture-room of the School of Mines at Columbia College.

Q. Did you make these experiments alone, or did you have assistants?

A. I was assisted.

Q. By whom?

A. In the electrical part by Mr. Edison's chief electrician, Mr. A. E. Kennelly, and also a number of laboratory 114 assistants, whose names do not, at the moment, occur to me, except Mr. Colgate. I was assisted in the physiological part; I am speaking now of the experiments in Mr. Edison's laboratory; I had the assistance of Dr. Frederick Peterson of this city. In my experiments at Columbia College on the first day I was assisted by Mr. A. E. Kennelly and Dr. Peterson. On the second day I was assisted in the electrical measurements by Mr. Schuyler S. Wheeler, electrician of the 115 Board of Electrical Control, who kindly volunteered to make the electrical measurements and in the reading of the electrical instruments. The physiological side was looked after by Dr. Peterson and by Dr. Edson of the board of health, and Dr. Charles S. Roberts, assistant professor of physiology of Bellevue Hospital College and also of the board of health under whose auspices Dr. Edson and Dr. Roberts were allowed to go on with my experiments, as they were vivisectionists and were

116 permitted to make such experiments in New York City. I was further assisted on the physiological side by Dr. Frank H. Ingram, by Dr. Hanbold and by Prosessor Landy of Columbia College and also another Columbia College professor whose name at the moment escapes me. And also Captain Zalinski of the United States Army. I was assisted by him in the electrical matters in helping to make readings of the instruments, etc., and there were others who took part whom I don't recollect at present.

117 Q. Were there present at any of these experiments representatives of any of the electrical lighting companies?

A. At the first experiments at Columbia College there were a large number of representatives of the various interests, both lighting companies, insurance companies, telegraph companies, etc. The room was full. I think there were nearly 800.

Q. Were there men present who had an interest in

118 the different systems of lighting, using the interrupted and continuous current?

A. Yes, sir.

Q. Did you extend an invitation to those gentlemen?

A. I extended an invitation to those gentlemen, especially those who attacked me, and I further requested them to bring their instruments and check up my measurements.

119

By Mr. Cockran:

I want to object to this as entirely immaterial.

Q. These experiments were made in the presence of some of those persons?

A. In the presence of some of them.

Q. Upon what animals did you make the experiments?

A. In these experiments at Edison's laboratory and at Columbia College, dogs were used in the first experiments, and the latter experiments, calves, horses and dogs were used. 120

Q. In these experiments did you determine the resistance in the animal before the application of the deadly current.

By Mr. Cockran:

I object to that. I want him to describe what he did. 121

Q. I ask you if you determined the resistance?

A. I did, in every instance.

Q. How did you do that?

A. By passing through the animal a current from a small battery.

By Mr. Cockran:

I want it spread upon the minutes in case of his describing these experiments, that I did not ask him anything about them, and Mr. Quinby makes him his own witness for that purpose. This is not cross-examination of anything I brought up. 122

Mr. Quinby:

You have made the objection assuming we would use him as our witness on this point, and we understand that any question we go into outside of questions brought up by Mr. Cockran, we make him our own witness. 123

Mr. Cockran:

With that understanding I do not object to their examining him on this point.

It is here stipulated that either party can take advantage or raise objections to any part of the testimony upon the hearing before the Court whether the objection be noted here or not.

124 By Mr. Quinby:

Q. Describe how you took the resistance of the animals when you made your experiments, or how you made your experiments?

A. A small current from a battery was passed through the animal after the electrodes or the wires had been placed in position and the surface moistened (in these cases with water) and a portion of the same current was passed through a Wheatstone bridge and
125 by varying the known resistance until a balance was obtained on the galvanometer we obtained a result exactly equivalent to the animal's resistance. This is a well-known process to electricians.

Q. Are there any schools of electro-medico science that dispute the possibility of taking resistance?

A. No, sir, not to my knowledge.

Q. Can it be taken in man?

A. Yes, sir.

126 Q. Is the process of taking resistance painful in any way?

A. Not at all.

Q. And does not come from the machine in which the deadly current is provided?

A. No, sir; the current is a very feeble battery current.

Q. And don't they have to determine the resistance of the different kinds of metal and wires to be used for wires and other parts of the apparatus?

127 A. Yes, sir; they do it by the same instrument.

Q. What is your standard measurement of resistance. What is your unit?

A. The unit of electrical resistance is the ohm, which is the resistance of a column of mercury, of a milliometer section and a trifle more than a meter in height, 1.06.

Q. Take any of these experiments and state fully what you did and what was the result?

(Witness here refers to pamphlet.)

Q. How many experiments did you make altogether upon living animals at the Edison laboratory and at the Columbia College? 128

A. I could not say off-hand.

Q. Give us some idea?

A. I should say about 30 to 50 experiments in these two series, and have made quite a number since. Altogether I should say approximately about 40 to 50 dogs, 6 to 10 calves and two horses. In the case of the twenty-second experiment at the Edison laboratory on the evening of July 24th, 1888, a current was 129 obtained from an alternating-current dynamo made by Siemens Bro. & Company, excited by a standard direct-current machine, operated at 1,080 revolutions and giving 288 alternations per second; a transformer or converter was used in order to increase the electromotive force to the desired extent and give us means for varying the pressure at will, and resistance was introduced in the circuit between the direct-current machine and the alternating-current dynamo, so that 130 we might adjust the electro-motive force in that way, and also, if necessary, stop the production of current without shutting off the power; the converter used in this case had a primary coil with a resistance of ten ohms and a secondary coil with a resistance of 150 ohms. A fox-hound in strong and vigorous condition, and weighing 56 pounds, 23 inches in height, length 45 inches, from tip of nose to base of tail, was connected by wrapping a bunch of wet waste about the 131 right fore-leg of the animal and the left hind-leg of the animal and holding this waste in position by wrappings of bare number 20 copper wire smaller than the average. The animal was then connected to a battery and Wheatstone bridge and his resistance was measured. His resistance was 27,500 ohms; a Cardew volt meter which indicates the pressure on the secondary circuit of the converter used in this case (the animal was connected with the secondary circuit of the

132 converter), and was connected so as to register correctly the pressure at any moment, and the pressure was adjusted by the means above described, so that when 181 volts electro-motive force was shown to exist between the terminals the dog was then connected with the secondary current and a switch keeping the circuit open, so that the contact could be governed for any number of seconds at will by this switch. The contact was closed for five seconds at 9.50 P. M., and the volt meter registered a dropping of the pressure 133 on account of the lack of the capacity of the converter to 160 volts. At the end of five seconds the circuit was opened and the dog was motionless and silent during the time of contact. As soon as the circuit was broken the muscles gradually relaxed and the dog sank down dead without a struggle.

Q. Was there an autopsy made of that dog?

A. Not of that particular case. There were several proceedings and several cases that followed where an 134 autopsy was made and sections of the nerves taken out and subjected to microscopic examination by Dr. Peterson.

Q. Take the case of the horse.

A. On December 5th at Mr. Edison's laboratory at Orange, New Jersey, experiments were undertaken by me in the presence of the committee of the Medico-Legal Society, which committee was composed of R. Ogden Doremus, Dr. Frederick Peterson, Dr. Frank H. Ingram and Dr. J. Mount Bleyer, and I believe 135 Mr. Eldridge T. Gerry was also appointed on that committee, but refused to serve. He was present at this experiment. After experimenting with calves, a horse weighing 1,230 pounds was connected by a wrapping of No. 20 bare copper wire and some cotton waste, wet in this experiment with a solution of sulphate of zinc, wound around the two fore-legs of the horse just above the knee and a series of seven 100-volt lamps was placed across the terminals of the

alternating current dynamo so as to indicate the 136
electro-motive force. The dynamo used in the experiments had been rewound so that we could get a higher electro-motive force than in the previous experiments. The same means for adjusting the electro-motive force as in the previous experiments was used, with the rheostat and field magnets charged by a direct-current dynamo. Wires were led to the horse, to which the current was applied for 25 seconds at 5.28 P. M. and we had an electro-motive force of 700 volts; during
this time the water steamed from the cotton waste, 137
showing an insufficient metal contact. The result was fatal, as well as in other cases, and death was instantaneous.

Q. Did you see any evidence of pain exhibited by the horse?

A. No, sir; the instant the circuit was closed there was a stiffening of the muscles through which the current passed, and perhaps after five seconds had
elapsed the muscles gradually relaxed, and when the 138
circuit was opened there was no motion and no sound whatever. The animal was at once examined by a physician present and pronounced dead.

Q. The current was applied to the calf—you did not state, by the way, what the resistance of this horse was?

A. The resistance was 11,000 ohms.

Q. You may state, now, the experiment on the calf.

A. On the same day a calf weighing 145 pounds, 139
and having a resistance of 1,300 ohms, was experimented on. The hair on the forehead of the animal was clipped short and saturated with a solution of sulphate of zinc, and the hair on the left shoulder was also clipped and saturated with sulphate of zinc, and then an electrode of metal two inches in diameter and covered with a moistened sponge was fastened to the forehead, where the hair had been clipped between the

140 eyes, and a second electrode, made of wire netting four inches long and two inches wide and also covered with a sponge, was applied at a point to the left of the spine and back of the shoulder. In each case the sponges were saturated with a solution of sulphate of zinc, and having a density of 1.054 at 60° Fahrenheit. At 4.26 P. M. an alternating current of 750 volts electro-motive force was applied for five seconds and death was instantaneous, the heart stopping at once, but there was a reflex movement of the muscles, which was observed 141 for one-half a minute.

Q. Do you know the fact to be that the reflex action of the nerves is painful or not?

A. It is not painful.

Q. Did you experiment at any time with what is known as the continuous current?

A. Yes, sir.

Q. From all these experiments which you have made, you may state whether or not, in your opinion, 142 instantaneous death can be produced upon a series or upon the kind of animals you experimented upon by the use of the alternating current?

A. Yes, sir.

Q. And painless?

A. Death is instantaneous and painless.

Q. Now, the apparatus furnished to the State, as you understand it, where will the contact be upon the individual or criminal made?

143 A. I understand that the authorities have adopted the suggestion made by the Medico-Legal Committee, which is to the effect that the hair of the criminal is to be clipped short, which would be done in any case, and a large electrode of say five inches diameter will be fastened to the top of the head. The electrode will be covered with a sponge and will be flexible, so as to conform to the contour of the head and strapped in position rapidly. It would be wet with a solution of common salt water and the other electrode would be

placed in a shoe, which would also be covered with a 144
sponge saturated with salt water.

Q. Would there be any difficulty in determining the resistance in a man?

A. No.

Q. Any more than there was in any other animal?

A. No more so than in any other animal.

Q. How do you account for the difference of resistance in the various animals upon which you experimented?

A. In dogs, for instance, we found that an animal 145
with long, fine, curly hair, having a number of hairs to the square inch, the resistance was less than on an animal of approximately the same size, like a pointer, having short, coarse hair. And we would explain that by assuming that the greater number of hair folicles penetrated the epidermis, which would be taken advantage of by the current and would reduce the resistance.

Q. Have you made any experiments for the pur- 146
pose of ascertaining the lowest voltage necessary to kill animals?

A. My first experiments had that object in view.

Q. Tell us the results, so far as you ascertained it from your experience?

A. We found that with the continuous current, when the circuit was broken upon the animal it was killed with what is called an extra current, which was delivered by the field magnets from the dynamo we 147
used. That produced death at about 1,800 volts electro-motive force, 800 volts being the pressure of the continuous current, but the extra current, which we had no means at the time of measuring exactly, but which subsequent experiments have shown ran much higher, several times as high. The extra current is due to the interposition into the current of an electro-magnet. We assume, and in fact we have found by actual experiment, that when a current of electricity is

148 passed around an iron core, the length of the core is
increased, and it is assumed that each particle of iron
will endeavor to stand at right angles to the current of
magnetism, and when that current is broken it is followed
by a readjustment of the particles of iron, each
particle assuming its former length instantly, and in
so doing there is caused a current in the circuit of very
high electro-motive force. When apparatus was applied
to the continuous current which would prevent
149 the extra current spoken of from reaching the animal
we were unable to kill, taking it at the highest pressure
we could command, which was 1,420 volts. With the
alternating current we found that, with the greater
number of alternations per second, a lower pressure
was required to kill. With our first experiments there
were but few alterations per second, but 666 alternations
per minute, and with that number of alternations
death was produced at 800 volts, but when that was
increased, the death of the dog was produced. With the
150 increased number of alternations to 288 per second
the electro-motive force necessary to kill was reduced
to the lowest point, 160 volts, and we found that the
length of time that the subject was left in the circuit
had a very important bearing, and the instantaneous
closing and breaking of the circuit produced no
fatal results, because it requires an appreciable time for
the current to pass through a resistance of that character.
If the length of contact was extended, death
151 was produced at a lower voltage than was necessary
where half that length of contact was made. The fact
proved to be that death ensued from the nervous shock
and the number of blows given to the nerves, and the
speed of the blows and the weight of the blows seemed
to determine the death point.

Q. From your experience, would death ensue quicker or more easily at a less voltage if applied to the head than to an extremity and to other portions of the body?

A. Yes, sir. When the current was applied from one fore-leg to the diagonally opposite hind-leg there

was a tightening of the entire muscular system, and 152
when the current was applied from the head to the extremity, the muscles seemed to relax gradually, and apparently the effect was to rob the muscles of their power to sustain the weight of the body, and they gradually relaxed.

Q. You may state from your investigations and from your experience, your opinion as to whether the application of electricity to a criminal as contemplated by the machine which you furnished to the State will produce instantaneous and therefore painless death? 153

A. It will.

By Mr. Poste:

Q. The matter of electrical units has been somewhat touched upon, and I would like to have you make a statement as to what are electrical units, their meaning and the definition of them. You have already stated the equivalent of the ohm, that is the unit of resistance? 154

A. Yes, sir.

Q. What is the unit of electro-motive force?

A. The unit of electro-motive force is the volt which is practically equivalent to one cell of Daniels' battery; it is actually seven per cent. less than the electro-motive force of one cell of Daniels' battery.

Q. Daniels' battery being a galvanic battery?

A. Yes, sir, a standard battery. The third unit in common use is the unit of current strength, which is called the ampere. 155 That is the current which will flow through one ohm of resistance when the electro-motive force of one volt is applied. The law of these three is most easily expressed by a calculation based on Ohm's law that the current in amperes equals the electro-motive force in volts divided by the resistance in ohms, and from that equation the value of the third may be obtained when two are given.

Q. This matter of resistance; how does that vary relatively to the length of the homogeneous circuit?

156 A. The resistance varies in direct proportion to the length. For instance, with a wire, a longer wire will have a greater resistance than a short wire, and if the wire is double in length the resistance will be double. But, on the other hand, the resistance increases inversely in proportion to the diminution of the cross sections of the conductors.

Q. The effective power of electricity is indicated by what? Is it the product of the current and the electro-motive force?

157 A. The electrical force exerted in any given case may be reduced to horse power by multiplying the current in amperes by the electro-motive force in volts, and that constitutes the unit known as Watts, which is 1.746 of an electrical horse power.

Q. You have spoken of the Wheatstone bridge as the mechanism by which resistance is measured. Is that true?

A. Yes, sir.

158 Q. What application has it in practical electrical science that indicates its absolute correctness?

A. For instance, a break in an underground circuit may be located by it exactly if there is a leakage to ground.

Q. What about the Atlantic cable?

A. A break in the Atlantic cable can be located with accuracy.

Q. And it proceeds upon the rule of three, the proportion of known resistance to an unknown resistance?

159 A. Yes, sir.

Q. What can you say as the result of your observation and study and experience as an electrician as to the relative resistance of man and animals. Is it true that the resistance of man is greater than the resistance of animals?

A. The resistance of any living organism referred to would depend, of course, on the amount of surface in contact with the electrodes through which the current is applied to the body.

Q. I mean, under the same conditions, the same size of electrodes and the same area of application, is there anything, as the result of your observation, in the like quality of man, that makes resistance greater than the resistance of an animal? 160

A. No, sir.

Q. Have you not found in your investigations that there are some animals whose resistance is greater than that of man on the average?

A. Yes, sir.

Q. You stated in your testimony yesterday that the average resistance of man was 2,500 ohms? 161

A. Yes, sir. I can give you, if necessary, the authority. Dr. Peterson refers to it in his papers, and he quotes from DeWatteville to this effect: "2,500 ohms may be assumed to represent the average resistance of the human body in the usual medical application."

Q. A man may be so built that his resistance would be very much greater than that, of course?

A. Yes, sir. 162

Q What would be the limits, do you think, of one side and the other which make up this average of 2,500 ohms?

A. From some of my measurements on human beings, taking the contact from hand to hand with moistened electrodes, the maximum, so far as my measurements go for a first measurement, is about 40,000 ohms. Although a subsequent passage of the current through the palms of the hands, by bringing the fluids of the body through the epidermis by what is known as electrolysis, would reduce that resistance. 163

Q. Then is it true or not by that application of an electric current through a living organism that the resistance may continually tend to decrease rather than increase?

A. The resistance of living beings upon the application of an electric current tends to decrease through the conversion of the epidermis, which is the seat of

164 the greatest resistance, into a better conductor; as compared with the epidermis, the saline fluids of the body are fair conductors, so that the greatest resistance is in the epidermis.

Q. Is not the change instantaneous, practically?

A. Yes, sir, and it is a very marked change, as we often find in some of our measurements made immediately after death that the resistance would drop to about one-tenth of the resistance before the closing of the circuit. 165 There is another change in the resistance which would occur if the current was allowed to flow for a very long time, which would be a slight rise on account of the action on the fluids of the body itself, but that rise would be very slight in comparison with the large drop of the resistance of the epidermis.

Q. You may mention a case which occurred among your experiments of an animal that was killed by electricity that presented the highest resistance of all of those operated upon by you, from your memoranda or from your recollection? 166

Witness refers to pamphlet.

A. The highest resistance of animals killed in the first series of experiments was 30,000 ohms.

Q. Was there any animal which presented a higher resistance than that in any of the experiments you made?

A. No, not in any of the experiments I made, although I will say that with all of these animals the 167 first measurement would be very high, and we frequently would have to run up to 70,000 or 80,000 ohms with the light experimental current from the battery; after that the resistance would drop. One cause of the dropping is the contraction of the muscles.

Q. How is that produced or effected?

A. For instance, I might sit with relaxed muscles and have my resistance measured—that is, from hand

to hand—until the galvanometer balances; then, by 168
contracting the muscles through which a small current passes, I could throw the galvanometer needle so that it would indicate a less resistance.

Q. The cause of the decrease is by the increase of your cross-sections of the conductor?

A. And by the shortening of the conductor itself.

Q. You have already stated that this experimental current would be applied not only without pain but without the knowledge of the subject?

A. Yes, sir, it would be applied without the 169
knowledge of the subject, except if it should be applied from cheek to cheek, which would give a metallic taste in the mouth, which an expert would recognize, but there would be no painful sensation and the subject would be unable to tell when the current was closed or open.

Q. When you interpose into an electric circuit an object which is of greater resistance than the rest of the circuit, what is the law which governs the distribution 170
of electro-motive force in that circuit?

A. The law previously quoted by me would apply in that case. The current would equal the electro-motive force divided by the resistance, so that the capacity of the current, from a galvanic battery, we will say, if the resistance of the circuit was doubled, but one-half of the current would flow that had flowed in the previous case.

Q. But that current would be necessarily throughout 171
the whole circuit?

A. Yes, sir.

Q. And the electro-motive power is distributed through the circuit and that various parts proportioned to the resistance at each specific point; is it not?

A. Yes, sir; if the resistance is equally divided through the circuit, the electro-motive force will drop equally throughout the circuit.

172 Q. In case of accidents which have occurred by contact, we will say with the electric-light wires, what, in your judgment and from your observation, is the cause of those accidents?

A. Nearly all of the accidents recorded have been caused where the subject has taken a portion of the current only and has not placed himself in the circuit itself. There have been several cases of death caused in this way. A man adjusting an arc lamp, we will say, and carelessly he takes hold of the framework of
173 the lamp and lifts the upper carbon and he breaks the circuit, and then he would form a part of the circuit itself and would receive, practically, the full current, and where self-exciting field magnets are used with dynamos of large capacity he would be killed. However, the majority of cases occur in this way: There is, we will say, a leak from an arc-light circuit, a leakage to ground, I mean the contact of some conductor which is connected with the earth and the electric cir-
174 cuit itself; this may be caused by telegraph wires scraping through the insulation, or water saturating the insulation and establishing a path of water, or of any other conductor, to the earth; and there being such a connection upon the circuit we will say that it is where the wire leaves the dynamo and before it reaches the first lamp on the circuit; and now if a man should stand on the earth on a wet day so that with the earth he makes a good ground contact, and it is between the first and second lamps he establishes a path for the
175 electric current, so that there is a choice for the current to go through the first lamp or go down to the ground, the ground being of low resistance, because of its infinite cross-section.

Q. By means of this first current?

A. Yes, sir. Going to the man and up through the man to a point where he touches the circuit; in that case he would receive a current proportioned to his resistance and the resistance of the arc lamps. We

will assume the resistance of the arc lamp is five ohms, 176
and that the man's resistance is the average resistance
from hand to hand, as in this case it will give a basis
for computation. Assuming his resistance is 2,500
ohms, you would then get a current due to his resistance
which would be one five-hundredths of the current
itself flowing through the lamp. If, however, he
should touch the circuit between the second and third
lamps he would get twice as much current as in the
first instance, because the resistance would be doubled
through the lamps, and if he touched between the 177
third and fourth lamps he would get still more, and
in order to receive the total shock under the conditions
stated he would have to touch the circuit at some
point on the wire which would have a very much
higher potential than the part where the ground connection
had been made; he should get 800 volts more
pressure upon him, and the ground deflecting through
him an amount which would be an appreciable part
of the main current. 178

Q. In such a case as that would escape from death,
or death in addition to being affected by the causes
which you have already mentioned, be the condition of
the ground, the atmosphere and the man's dress somewhat,
be affected by the condition of those things?

A. It is affected by the condition of the atmosphere,
that is, whether it is foggy or clear, or whether there
has been a recent rain, or where the man touched the
circuit and where he establishes the ground himself, 179
by touching with the hand some metal connected with
the ground, or by standing on a wet place, and whether
the pressure between these two contacts is sufficient to
produce death.

Q. What effect would heavy shoe-soles have?

A. If they were dry they would be of very high
resistance.

Q. Now state, in view of all these causes, is it
perfectly easy or even possible to ascertain in regard

180 to such an accident the actual amount of voltage that passes through a man's body?

A. It would be very difficult to obtain the actual voltage which killed, but the party who receives the shock is, of all other parties, the least in condition to determine how much current he receives, or of the pressure. I have had experience in that myself.

Q. Have any causes of death come under your immediate personal observation; have you seen persons killed?

181 A. Not at the time they were killed.

Q. How soon after death?

A. In one case within an hour or so.

By Mr. Cockran:

Q. This is a document or a paper which embodies the results of your experiments, set out in the report of which you spoke yesterday?

182 A. I don't remember anything about the report yesterday.

Q. You remember yesterday my having asked you if you reported to the Medico-Legal Society, and you said you didn't, but that you made a report to the public?

A. This includes the experiments made up to the middle of December, 1888.

Q. This is the report of which you spoke yesterday?

A. Yes, sir.

183 Q. And which you published and circulated, and which contains all the experiments you have made up to that date?

A. Yes, sir.

Q. There are some subsequent experiments not mentioned in these?

A. I don't think those have been touched upon.

Q. This is the pamphlet of which you spoke yesterday?

A. Yes, sir.

Pamphlet offered in evidence, by relator's counsel. 184
Received in evidence and marked "Exhibit A."

Q. This print or picture on the first page represents the experiment with the horse, does it not?

A. Yes, sir.

Q. This pamphlet was published by you for the purpose of proving that the alternating current was extremely dangerous, while the continuous current was comparatively harmless?

A. Not exactly. 185

Q. State what was the object of it?

A. Of proving that the high-tension alternating current was dangerous and that the high-tension continuous current could be made fairly safe.

Q. You began it by a preface in which you urge the use of safety devices for arc-light circuits, do you not?

A. I don't remember the details of the preface at this moment.

Q. You state here "the safety devices suggested for 186
arc-light circuits will, if adopted, make it almost impossible to produce death with the continuous current at a pressure of 3,000 volts or less."

A. Yes, sir.

Q. And the object of this whole production is to show the superiority of the continuous current over the alternating current in point of safety?

A. Yes, sir.

Q. There is a contest between the Westinghouse 187
Electric Light Company and the Edison Electric Light Company as to the use of these incandescent burners?

A. I understand so.

Q. And there is considerable feeling between the two corporations?

A. Of that I cannot say.

Q. Don't you know anything about it at all?

A. Not from actual knowledge.

Q. Would you believe that such was the case?

188 A. I should suspect that there was.

Q. You chose Mr. Edison's laboratory as the place where the experiments should be demonstrated?

A. I didn't choose it.

Q. Who did?

A. Mr. Edison offered me his laboratory, and that was the only one I could get for the purpose with apparatus that would enable me to make the experiments.

189 Q. The reverse side of this book from the picture contains a challenge to Mr. Westinghouse?

A. It does.

Q. Now, up to the time that you made these experiments, do you know whether any experiments had ever been made to determine the effect of electricity upon human life, or to determine the capacity of electricity to destroy human life?

A. A French scientist named D'Arsouval made a number of experiments some years ago in regard to
190 the effect of electrical currents upon living animals. I do not know the motives he had in view in making such experiments.

Q. Do you know the results of his experiments?

A. I know some of them.

Q. How did you become acquainted with them?

A. Through reading.

Q. Reading what?

A. I think it was in one of the electrical papers
191 published some years ago.

Q. You never read a complete report of his experiments published in book form?

A. No, sir.

Q. And your knowledge of that is confined to something you read in an English periodical?

A. Yes, sir.

Q. Where does D'Arsouval live?

A. In Paris.

Q. Are you at all acquainted with his capacity?

A. In a general way. 192

Q. What do you know of him in a general way?

A. Simply that he is a prominent electrician in France.

Q. How do you know he is a prominent electrician in France?

A. I know very little of him.

Q. And knowing very little of him, yet you say he is a prominent electrician?

A. He is referred to as such.

Q. By whom? 193

A. By French electrical papers.

Q. Did you ever see his name, except in this one paper?

A. Yes, sir.

Q. In what connection?

A. As I remember it at present, in connection with the use of the alternating current in Paris.

Q. That was a subject in which you interested yourself. Outside of that had you ever heard of him 194 in any way as a prominent electrician and well-known, reliable scientist?

A. Yes, sir; he made some experiments on the dangers of the use of the self-exciting dynamo.

Q. That is the same as you have described. I said outside of that?

A. I don't remember at the moment. His name is a familiar one to me, however; but I have no personal acquaintance.

Q. You may be acquainted with a man's works 195 without knowing the man. I will ask you if you are familiar with the man's scientific standing. I do not refer to personal acquaintance.

Q. Yes, sir.

Q. I ask you, if you know anything about the gentleman outside of having seen his name in a foreign periodical—outside of the fact that you heard he made some experiments of alternating currents. Is that the whole of your acquaintance?

196 A. I have read at different times articles by him.

Q. Where?

A. I could not say where.

Q. On what?

A. Papers on electrical matters.

Q. Give us anything outside of the alternating current.

A. I don't know as I can recollect.

Q. Now in order to get this matter so as to get a definite answer, I will put you a formal question. 197 Prior to June 4th, 1888, are you aware of any experiments that had ever been made in this country to ascertain the effect of electrical currents upon human life or their capacity to destroy it?

A. There were some experiments made last year, the date I don't remember, I think by Dr. Southwick and others in Buffalo.

Q. You don't know whether those were prior to June 4th or not?

198 A. I do not know.

Q. Are there any others that you know of?

A. Dr. J. Mount Bleyer told me—

Q. I ask you that you know of?

A. I don't know, outside of my experiments, that there have been other experiments to determine the pressure of a current required to produce death in animals. There have been experiments tried to kill animals with Leyden jars with induction coils.

199 Q. What was the result of those experiments, so far as you know?

A. So far as I know, the result was not satisfactory.

Q. What do you mean by the expression, the result was not satisfactory; to the animals or to the man? Let us understand what you mean. Is it that they were failures and did not produce death?

A. My impression is that on the larger animals the experiments have proved failures, but on the smaller animals my impression is that they have produced death.

Q. Is it your opinion, or idea, that the fatality depends upon the size of the animal? 200

A. Not exactly.

Q. Is it remotely, or in any sense?

A. That is outside of my line of information, except this, from my conversations with vivisectionists—

Q. I want to know how you acquired the idea, from experiments or from your own knowledge?

A. There are some quadrupeds which are very easily killed, but outside of that I do not think that the size of the animal is any criterion of fatality. 201

Q. You said that the current developed by the Leyden jars was fatal against some animals, small animals, but not against large ones. Was that a correct answer in view of the last one?

A. I said that my impression of experiments made by others was to that effect. There may have been other circumstances of which I have no knowledge.

Q. Don't you know as a matter of fact that some of the smallest animals are the ones in which vitality is strongest and hardest to be destroyed? 202

A. Do you mean quadrupeds?

Q. I am not confining myself to quadrupeds; I say any animals?

A. Of course some of the bacilli are very difficult to kill.

Q. What about the quadrupeds and bipeds. How as to the quadrupeds?

A. That would depend upon the means of death. 203

Q. You mean the cause of death?

A. It would probably take longer to kill a cold-blooded animal with slow circulation by injecting poison into it than an animal with rapid circulation.

Q. We are speaking of the vitality with reference to the electrical currents. Do you think that the small animal is more easily killed than the large one?

A. No, sir.

Q. You think the small animals would be just as tough subjects?

204 A. They might be.

Q. Did you try any electrical experiments upon cats?

A. No, sir.

Q. Why did you exclude the cat and select the dog?

A. Because the cat is very apt to wiggle around when you attempt to apply the electrode, and they also have claws.

Q. Don't you know that the cat has certain susceptibility to electricity that other animals have not? 205

A. I do not. I know you can get a static electricity from it, and that indicates that that particular hair is of a highly electrical capacity.

Q. Wouldn't that have some effect on your experiments?

A. I don't think it would.

Q. Would it have any effect upon the electrical resistance?

206 A. No, sir, because the electrical current is of an entirely different character from the statical current. That discharge is only through the hair.

Q. That is your theory about it?

A. Hair is practically a non-conductor.

Q. Is that a theory or demonstration of a scientific fact, or is that just a belief of your own?

A. I never attempted to measure its resistance.

Q. What is electricity; can you tell us?

A. No, sir.

207 Q. Do you know whether it is a fluid, or a flame, or what it is. Give us an approximate idea of what it is?

A. It is as impossible to define in words what it is as it is to define life.

Q. You say it is impossible to define it, or to describe it?

A. It is impossible to describe the phenomena of life, but not life itself.

Q. You say it is possible to ascertain the resistance of a human body? 208

A. Yes, sir.

Q. Did you ever try it?

A. Yes, sir.

Q. How?

A. By making measurements.

Q. How do you know that it was accurate; what test did you have?

A. The apparatus I have used has been calibrated by good authority. 209

Q. You never have done it by actual experiments?

A. Yes, sir, measuring the resistance.

Q. What actual experiment did you make to test the accuracy of your measurements?

A. I had the Wheatstone bridge, which was compared with a standard Wheatstone bridge by high authority, and they assured me it was correct.

Q. You introduced a current of electricity into a man and the Wheatstone bridge showed something and 210 you believed that something was correct?

A. The Wheatstone bridge gives as accurate measurements as the scales for weighing.

Q. I ask you if you did not introduce a current of electricity into a man, and the Wheatstone bridge used by you showed something, and you believed that something was correct? The Wheatstone bridge showed some standard of resistance, or what you conceived to be some standard of resistance, and that is all the 211 knowledge you have, is it not?

A. It showed the actual resistance.

Q. How do you know it showed the actual resistance?

A. Because of my knowledge of Ohm's law and of the flow of currents in electrical circuits.

Q. What do you know about the accuracy of the Wheatstone bridge?

A. I know it is assumed by leading authorities to

212 be accurate and its results have shown me that it is accurate.

Q. Confining your answer to the human body, have you ever tested its accuracy?

A. Having the known resistance, I am fully convinced that by obtaining a certain result with the Wheatstone bridge by passing a battery current in shunt through a human being, I am convinced by my knowledge of electrical circuits and their laws that the
213 results obtained is correct.

Q. Then it is simply a matter of belief on your part, and not a matter of demonstration?

A. To an electrician it would be a demonstration—to a man who knew electrical laws.

Q. Kindly make the demonstration to us, who are not electricians; tell us how you have been able to ascertain the accuracy of the measurements you have described; how, by any known experiments it has been demonstrated that it is correct, the measurement of
214 the resistance of the human body?

A. The current from an electric battery is carried through a conductor whose resistance is supposed to be very slight on account of its shortness of length and large cross-sections in comparison with the resistance to be measured and the binding post on the instrument known as the Wheatstone bridge. It then has two paths offered to it which are known resistances, and in accurate and standard instruments, if the re-
215 sistance to be measured is high, the known resistances are made quite high. At the end of each of these resistances is a third circuit connected across, and in which is interposed a galvanometer.

Q. Are you describing a Wheatstone bridge, or describing the experiments by which a Wheatstone bridge has been proved to be accurate?

A. I am describing the bridge, so as to determine how its accuracy is accounted for. And from one of these points of junction between the galvanometer cir-

cuit and the resistance circuit is a variable resistance 216
between the other point or junction; and between the
galvanometer circuit and the known resistance is a
wire leading to the object whose resistance it is desired
to obtain. The other terminal of this object whose
resistance is to be measured, is brought back and
joined to the terminal of the variable known resistance
and that is again joined to the battery. This condition
of affairs is now present. The current from the bat-
tery, reaching the first point, has two paths to en- 217
counter. It will divide between those in accordance
with known laws, passing through either of them. It
then has these two paths open to it: through the
known and variable resistance back to the battery,
through the galvanometer and through the body to be
measured, back to the battery; or, coming from the
other side, it can take the opposite course, and go
through the second known resistance; then it may go
either through the body and back to the battery, or
through the galvanometer and the known variable re- 218
sistance back to the battery. When the resistances are
so arranged that the two are equal, the first two known
resistances being equal, and the variable known re-
sistance is so set that when the current flows through
the galvanometer we know definitely that its resist-
ance is equal to the resistance of the human body, or
whatever may be on the other circuit. If the resist-
ance of the human body is greater than the variable
resistance a portion will flow through the galvanometer 219
on the line connected to the human body, deflecting it
in one direction, showing that the resistance of the
body is greater than the variable resistance at our
command. If, on the other hand, the resistance of the
human body is less, a portion of the current would
flow to the variable resistance, and will flow through
the galvanometer and deflect it in the opposite direc-
tion in the passage of the current; but as soon as the
two are made equal to each other the needle of the

220 galvanometer remains in the centre, and we know that the resistance which we have set is equal to the resistance which we desire to measure. With a diagram I can make it clearer to you.

Q. You have now told us all about the resistance of the current—in determining the amount of the current which will be applied, or which must be applied to the culprit. In this method of execution prescribed by the State, the materials of which are furnished by 221 you, is the executioner guided entirely and necessarily by the degree of resistance shown on the Wheatstone bridge?

A. Yes, sir; or by any other galvanometer used for the purpose.

Q. In other words, the measuring of the resistance of the body must first be done, the measure of resistance must first be ascertained, in order to ascertain how much current you have got to send through the body?

222 A. Yes, sir; and then if the resistance is too high the electrodes can be made larger.

Q. Let us assume that your measurement should be incorrect, or from any other cause that the current was not strong enough to kill; what effect would it have upon the criminal?

A. That would depend upon the strength of the current.

Q. Suppose it was not strong enough to kill but 223 was 600 or 800 volts current, during the passage of the current, assuming that your Wheatstone bridge or any other instrument was in error in recording the resistance, or an error was made in the calculation of the resistance and the current was turned on not sufficient to kill, what would be the effect on the subject?

A. During the passing of a current unable to kill, its effect on the human body would be entirely proportioned to its electro-motive force.

Q. I want you to imagine you know all about it,

of a current with electro-motive force, a current carried 224
through the body of a person as you have described, not sufficiently strong to kill him, what effect it would have upon the human frame?

A. If he received as large a current as I once accidentally received he would be entirely unconscious during the passage of the current, and entirely unconscious of any injury, or any burns, that might have occurred, and would be unable to feel them at all.

Q. You have no knowledge of its effect outside of your own experience, no knowledge by observing it 225
passing through others?

A. I have seen others break the circuit and receive burns, but in this case, as the electrodes are moistened, there would be no burning.

Q. How long would that moisture last if that current was kept up?

A. That would depend upon the amount of moisture and the length of time and amount of current.

Q. Take the particular electrodes which you have 226
furnished, and tell us how long that moisture would last with, say 600 volts, a man able to resist that amount: would it be dried up in a few seconds?

A. I don't think it would.

Q. In a minute?

A. Not with the amount of sponge surface that will be provided.

Q. How long would it take to dry it up with the amount of sponge surface that will be provided?

A. It might require all day. 227

Q. And it might not. Do you know how much water would be provided yourself; and you have furnished the sponge?

A. No, sir; I did not furnish the sponge.

Q. You furnished the apparatus for the sponge?

A. Yes, sir.

Q. And you know how much sponge will go on there. Now give us a candid answer, and tell us in

228 your judgment as an electrician, how long it would take to dry up that moisture if burning ever began?

A. If I were to supply the sponges, etc., and should provide them, if it was necessary to keep the current running for half an hour or so, with a series of rubber pipes which would drip moisture on them.

Q. Supposing the moisture was not dripping upon the sponge, and was exhausted, the sponge would burn up?

229 A. It would depend altogether on the amount of current. At 600 volts it would depend upon the resistance encountered, and, if there was but a small current flowing through it, would take longer to dry up the moisture.

Q. And in the meantime it would burn the surface of the body?

A. That would depend upon the amount of current and the electro-motive force; the burning only occurs at the break of the current.

230 Q. That comes alongside of his skin?

A. Yes, sir.

Q. And that would be the place where he would be burned?

A. Yes, sir; he might be.

Q. And if the burning commenced at this point of contact, it would burn the flesh right off the bones?

A. Not with a current which would fail to prove fatal under these circumstances.

231 Q. Then your understanding is that if a current would burn it would necessarily kill?

A. Not exactly that way.

Q. If the current was strong enough to burn, and yet not strong enough to kill, that burning would continue as long as the current continued?

A. No, sir.

Q. What would stop it?

A. Supposing that we have two carbon points, and an electro-motive force of 50 volts, and a current of 10

amperes separating them by a quarter of an inch, by 232
first touching them and then separating them you produce an arc; that is necessary in order to produce an arc, and we may hold them a quarter of an inch apart any indefinite time, but unless they touch there would be no arc produced by the ordinary arc-light current. By the burning apart of the electrodes and the diminution of the current to such an extent it would no longer sustain itself; it would be extinguished.

Q. Supposing it was kept up?

A. That is, supposing you increased the electro- 233
motive force, and if you do that you have to start the arc, and you could do that until it would consume platinum.

Q. And you can consume human flesh?

A. Yes, sir.

Q. Assuming a person is placed in this chair, and is to undergo the sentence of death by inflicting or causing to pass through his body or through the body of the convict a current of electricity of sufficient in- 234
tensity to cause death, and that the application of such current must be continued until such convict is dead; assuming that a current is introduced that is not sufficient to cause death and that this burning begins, the current must be kept up according to the provisions of that sentence, is there any way in which this burning of the flesh can be arrested without interrupting the current?

A. Yes, sir, by reducing the amount of electromotive force. 235

Q. But the current must be kept up until he is dead, and keeping that current up until he is dead, you would have to increase it in order to kill him, that would be your only chance?

A. No, sir; because the number of blows delivered to the nerves is what determines the killing point.

Q. How do you know that?

A. By our experiments.

236 Q. And didn't you tell me that you didn't know what the nerves were that were disturbed?

A. Yes, sir.

Q. Can you tell us the particular nerve that is to be struck?

A. The spinal cord is to be struck.

Q. Does a blow on that cause death; of that current?

A. Yes, sir; and on the other nerves.

Q. What other nerves?

237 A. The motor nerves and the nerves of the legs; there is a nerve which starts from the base of the spine and runs down on the lower part of this bone and between these two bones to the foot.

Q. That nerve is to be struck?

A. That with the other nerves.

Q. What are they?

A. They are white tissue.

Q. Where are they and how are they to be affected?
238 Could a blow upon this nerve you have described—is that going to cause death?

A. A blow on the entire length of the nerve?

Q. What pressure must you give to cause death, using the illustration of a hammer, for instance?

A. Pressure sufficient to prevent the nerve from exercising its control over the pulsation of the heart would in a few moments, if continued, produce death by heart failure.

239 Q. Have you any knowledge on this subject, or is this something you have picked up from talking with physicians?

A. I have learned it by my experiments in this line.

Q. You say if this nerve be beaten, the motor nerve, what other nerves would be affected?

A. The entire nervous system has to receive a certain amount of electrical current.

Q. How does that act upon them?

A. The usual action of an alternating current of 240 700 volts and upwards, if the electrodes are so situated that they cannot be broken away from by the subject, is a stiffening of the muscles controlled by the nerves through which the nerves pass.

Q. If you will kindly explain the effect of it; do you understand now in what way electricity destroys life; can you undertake to define it?

A. Not all the ways, but some of the ways.

Q. Would you undertake to describe to this Referee, under oath, the manner in which any elec- 241 tric shock which may be administered may be fatal; the method by which it destroys life?

A. I can describe the effects produced upon living animals in my experiments, any of which would be sufficient to cause death.

Q. Will you describe the manner in which electricity destroys life in a human being?

A. I cannot describe all methods; I can describe one. 242

Q. Can you describe even one method by which you are satisfied that an electrical current introduced into a human system would destroy life necessarily?

A. Yes, sir.

Q. Do it.

A. A current sufficient to paralyze the motion of the heart.

Q. Do you know what paralysis of the heart is?

A. Yes, sir; a failure of the heart to respond to 243 the nervous pulsations which keep up the automatic beating of the heart. That would be heart failure.

Q. Is that your description of paralysis of the heart?

A. That is a description.

Q. Is that a correct description; do you know whether it is or not?

A. I assume that it is.

Q I asked you, can you tell us the method in

244 which an electrical current introduced into the body will cause death?

A. Not the method, but some of the methods. I would not undertake to describe its entire effect, because that is beyond my knowledge. But from what has come under my observation, and from my experience, I can describe some of the effects.

Q. Do you understand anything about anatomy? Did you ever make a post-mortem examination?

245 A. Yes, sir; I have been around post-mortem examinations while they were in progress.

Q. Did you ever take part in one?

A. Not in a post-mortem on a human being.

Q. I am speaking of human beings. Did you ever dissect the remains of a human being?

A. No, sir.

Q. And when you speak of the effect of an electrical current on a human being, are you doing any more than stating a belief or an assumption?

246 A. I am.

Q. You are either speaking from knowledge or you are not?

A. I am speaking from experiments I have made.

Q. And from that experience you claim you can describe the method in which an electrical current will destroy life in a human being?

A. Not *the* method.

Q. You claim from those experiments, and from 247 your experience, that you can describe the method in which an electrical current will inevitably destroy life in a human being—be certain to destroy it?

A. Yes, sir.

Q. Describe it.

A. I have received a current of electricity from a medical battery which has been sufficient to overcome my will power in attempting to relax the muscles of my hands holding the electrode, and I therefore know from personal experience that an electric current can

overcome the will power, and can hold the muscles 248
rigid.

Q. Will you describe what you mean by will power?

A. I am not a mental philosopher.

Q. You have used the term, and I ask you: What is will power?

A. Will power is a voluntary control over the muscles. That would be a description fitted to this case. Anything that can hold the muscles rigid irre- 249
spective of the desires and wishes or control of the animal through whose system the current is flowing. I know that a current passing through the human heart and through the nerves controling the action of the heart and the reflex action of the heart will stop its motion, and it will exert a similar effect upon all the organs.

Q. Do you know that—you believe it, you mean?

A. I know it.

Q. Did you ever have one pass through your heart. 250
You have simply reasoned it?

A. It is reasoning, of course. All knowledge is a matter of reasoning from facts already known. What is knowledge otherwise?

Q. So far as this particular branch is concerned. What happened to your hands, you know; that is knowledge; but what happened to your heart, that is speculation?

A. An animal upon which I experimented, while 251
receiving an electric current was found to have no heart action, and therefore I conclude that, as the animal's heart acted before the current was applied, and, that as it did not act after the current was applied, that that current stopped the action of the heart.

Q. Is that the extent of your information on the subject?

A. On that point; and I further know that the stoppage of the action of the heart for a considerable period causes death; as it did in this case.

252 Q. That is the method by which you reach the conclusion which you have described in your answer to the Attorney-General, or one method, when you say that you know that this electrical current will cause death in the human body; you base that upon the answer you have now made?

A. Upon one method. Another method is this: I know, by my experience with electro-plating batteries and dynamos and solutions, that a current of electricity
253 flowing through a liquid conductor, from one metal plate to another, will occasion decomposition. If it is an acid solution or a saline solution, it will rise in bubbles on the positive plate: that is, the oxygen will, and the hydrogen will rise in bubbles upon the negative plate, and the human body contains saline fluids, among which blood may be named.

Q. Did you ever analyze blood?

A. I have examined it under the microscope.

Q. Are you speaking of your own knowledge, from
254 analysis of your own?

A. I don't remember at the moment whether I have made any test of that kind, but I have the impression that I have made a test to determine the presence of acid in the blood. To continue my answer: The effect of the electrical current passing through the blood cannot differ from the effect produced by it in passing through another fluid, and in order to pass through a fluid it must exert that effect,
255 or the production of the atoms of hydrogen at the negative pole and the atoms of oxygen at the positive pole, and that effect, in my experiments on animals, is shown by post-mortem examinations; that it leaves the blood in a different condition from living blood; that is, looking at it from the standpoint of an observer and not a physician, instead of having arterial blood of a bright red color the color is a very dark red, and it is markedly changed even to a non-medical observer in its character.

Q. Do you know that that would be fatal: that change in the appearance of the blood would be fatal to the human system? 256

A. I cannot say that I know that, but I know that any change that would interfere with the circulation of the blood, would produce—

Q. But that would not interfere with the circulation?

A. If it were thickened it could not pass through the finer veins and arteries.

Q. Do you say it was so thickened that it could not? 257

A. I simply say, judging from the standpoint: from a common-sense view.

Q. That is, without medical knowledge?

A. Yes, sir. And then again the fact that all sections of the nerves which were taken from some of these animals which were killed, the nerves were about the sixteenth part of an inch in diameter, and those sections cut out were from an inch and a half to 258 two inches long, and they were of a yellowish white appearance and were flexible, and were unelastic, and their feeling to the fingers was something like the feeling of a rubber from which the elasticity had nearly gone, and when examined under the microscope showed that the nerve sheath, which ordinarily is fibrous, the fibres running parallel to the nerve had been broken up into cells or granules, and between these cells or granules, under a microscope, would display minute hemorrhages, showing that the blood 259 supply of the nerve had been permanently impaired.

Q. Do you know that is what that shows of your own knowledge?

A. I have seen sections of nerves when so treated under the microscope, and have seen them when not treated, and have seen the fibrous character of the nerves.

Q. Did the nerves look as though they had been twisted and torn, torn off from this supply of blood?

260 A. No; they looked as though the current in passing through them had, by charging it first one way and then the other, granulated it and shaken it up in its motion.

Q. The current in passing through it had torn it away from the supply of these little blood vessels, according to your statement?

A. It had shaken it so as to break the blood vessels; how it did it I cannot say.

261 Q. Did the nerve, as you saw it, appear to have been stretched?

A. No, sir.

Q. As I understand you to say, the criminal, if he received a shock which would be sufficient to cause death, would, according to your experience, be thrown into a state of unconsciousness; judging by your experience; am I right?

A. That question cannot be answered by yes or no.

Q. Judging by your experience, what would the effect be? 262

A. I once received a shock which not only occasioned severe burning, but which threw me on to a moving belt and tore the flesh from my forearm so that the bones were exposed.

Q. What tore you?

A. The belt.

Q. That was not the electric current?

A. No, sir; that was a very painful thing ordinarily, a burn of that extent, and I was tossed about— 263 on the belt—and struck my hand and also struck my ankle on one side of the floor, and my foot struck the floor, also, as I was being carried towards the dynamo, and during that time I felt no wounds and did not feel the motion.

Q. According to your experience, would not that have the same effect on a criminal?

A. If he received as much current as I did, yes.

Q. You are aware that there have been several instances in which an electrical current which has been 264 taken by persons who have grasped highly charged wires with both hands at once have been burned to the bone?

A. Yes, sir.

Q. Don't you know that an electrical shock has a powerful effect upon the nerves?

A. Yes, sir.

Q. And is the unconsciousness you have described the inevitable effect of an electric shock?

A. Not of a fatal electric shock; but of a powerful 265 electric shock.

Q. Is it the inevitable consequence of any powerful electric shock?

A. Yes, sir.

Q. In the case of a shock powerful enough to burn, would unconsciousness supervene?

A. No, sir.

Q. Would you not call it a powerful electric shock that would hold a man suspended in the air without 266 the power to let go?

A. It might not be. I could hold a man suspended in the air, who was not able to let go, by one cell of a battery.

Q. Sufficiently strong to burn his hands to the bone?

A. No, sir.

Q. I ask you if you consider a shock sufficiently strong to burn a man's hands to the bone would be able to hold him suspended—a mild electric shock? 267

A. Not a mild electric shock: the burning depends upon the quantity of current, and not upon its electromotive force directly.

Q. In the case of a person tied up in a chair, such as a criminal would be, is it possible that a current would inflict great torture without making him unconscious?

A. If it were given to him at a very low pressure it might.

268 Q. What pressure would you define as a very low pressure, under the circumstances?

A. I should say 50 to 100 volts.

Q. Might not 200 volts on some subjects have that effect? You have described a shock of 50 to 100 volts, and I ask you if a shock of 200 volts might not have the same effect on some subjects?

A. It might.

Q. And might not a shock of 400 volts?

A. In my opinion a shock of 400 volts, continued 269 for any length of time, with an alternating current, would be fatal.

Q. That is your opinion. You have no demonstrations of that fact?

A. I have produced fatal results at, I think, that voltage.

Q. But I ask you, would not a shock of 400 volts, if it might not possibly have that same effect?

A. If you assume a shock of 400 volts will not kill, 270 I don't feel at liberty to say, without knowing what the facts would be.

Q. You have no knowledge that it would kill a human being?

A. Not definite knowledge.

Q. Does not your whole knowledge on the subject, and would not your action if you were the executioner, depend entirely upon the measurement of the resistance, the amount of volts you would give a man?

271 A. I will say in that way, that whatever the resistance of a criminal was shown to be, if it was an exceedingly high resistance, before applying the current the electrode, or an electrode, would be applied to the other foot, to reduce the resistance; and if I had to take that responsibility I should not care to use an electro-motive force of less than 1,500 or 2,000 volts.

Q. I ask you if the amount of volts that you would administer to the criminal would not depend on the amount of resistance measured by this Wheatstone bridge?

A. Not altogother. 272

Q. It would depend mainly on that, would it not?

A. Yes, sir.

Q. What else would it depend on?

A. On the surface of the electrodes.

Q. But the surface of the electrodes can be regulated at will; you can increase or diminish them?

A. Yes, sir.

Q. And wouldn't you increase or diminish them according to the measurement of his resistance?

A. You asked whether I would vary the volts. 273

Q. I ask you whether your whole purpose would not be to determine the quantity of volts, and you get at the surface of the electrodes and everything else to be used by the measurement of his resistance?

A. Yes, sir.

Q. Does it make any difference in the results how many cells of a battery are used in making the measurements with a Wheatstone bridge?

A. With your resistance, yes. 274

Q. So that according to the number of cells the resistance shown would vary?

A. No; if you measure a low resistance, one could use a small number, but in case of a high resistance to be measured the number of cells would have to be increased.

Q. Would it make any difference in the result of the measurement, the number of cells you used?

A. Not if that fact is taken into consideration. 275

Q. What fact is taken into consideration?

A. I don't know how to explain it any clearer.

Q. My question is this: When you undertake to measure the resistance of a human body, has the result of the measurement, or is it in way affected by the number of cells that are used in the battery?

A. Yes, sir.

Q. How many did you use in these cases to measure the resistance, say of the horse, for instance?

276 A. We had a box with about 32 cells, and about 6 of those were used.

Q. Don't you remember accurately how many you used; isn't that part of your experiment?

A. The management of the battery was taken charge of by Mr. Kennelly, Mr. Edison's expert.

Q. So you don't know how many cells you used?

A. Definitely I don't remember.

Q. In measuring the resistance, as I understand
277 you, you say that the number of cells in a battery is a fact to be considered in reaching the result?

A. Yes, sir.

Q. And the greater the resistance that would be shown, with a large number of cells a greater resistance would be shown than with a small number?

A. No, a greater sensitiveness would be obtained by using more cells.

Q. More cells than what; more than 50?

A. Suppose that we used two cells of battery to
278 make a measurement which has but four to ten ohms resistance, then the amount of current flowing through would be sufficient to turn the needle; of course, the resistance offered in the four to six ohms to the battery current would be very slight, but if our measurements run up into the thousands, the wire used is very fine, and, of course, the current, passing through a large amount of resistance, is reduced by Ohm's law, and therefore the amount which is left to operate the
279 galvanometer is less, and by putting on more cells we make the galvanometer more sensitive.

Q. Does that in any way interfere with the measurement?

A. Not necessarily.

Q. Does it unnecessarily?

A. A measurement with a few cells would give a range of say from 50 to 100 ohms, and the measurement with a greater number of cells would, with the same needle and galvanometer, give it in a closer range.

Q. What do you mean, give less or more ohms of 280
resistance?

A. Less or more variation. In making your measurements with the Wheatstone bridge, we first set our variable resistance nearest the battery and the galvanometer circuit, we will say of 100 ohms in our variable resistance, the needle deflects and shows that we have not enough, so that we change our variable resistance and we put in 500 ohms, and the needle should throw the other way and thus show that we 281
had got too much, and we might have to deduct it until we have 200 ohms.

Q. What effect have the cells got on this?

A. Simply this: We may work from say 250 ohms; then, if the needle deflects, we may work from the other way and get 400 ohms, and from 400 ohms down, we will say to 300 ohms, and we may maintain a feeble motion there. I am merely saying that perhaps that would produce that result. We will say that the ohms, as shown in one direction, were 300, and in 282
the other direction 200, with a current that is not sufficient to move the needle, so that we find that we have a range of 100 ohms unaccounted for. Now, by putting on a little more battery power, we can possibly reduce that variation from 275 to 225, and so on.

Q. Then, according to that principle, the number of cells would decrease the amount of resistance?

A. No, sir; in certain cases it would give a greater sensitiveness to the needle.

283

Q. How many cells would you put in a battery to test the resistance of a human being?

A. In order to have ample cells for getting an additional power, I should supply a battery with about 24 cells.

Q. And there were only six used in the experiments?

A. Yes, sir.

Q. And you put in 24 in this experiment?

284 A. Yes, sir, for the purpose of having more power; if any accident should happen to some of them there would be still enough.

Q. How many would you start with in the first instance?

A. I should start with six cells, and if the resistance came down to about 2,500 ohms that would be enough to indicate it quite accurately, but if his resistance was to be 100,000 ohms it would require greater accuracy. 285

Q. What is the relative power between a flash of lightning and a current of electricity that can be generated by artificial means?

A. A flash of lightning might exert 50 to 100 horse-power in a fraction of a second, as is evidenced by the complete disintegration of the material of a tree, for instance.

Q. You could not generate an artificial current as strong as that?

286 A. Not to that extent.

Q. Could you to anything appreciably near it?

A. We could generate a static current that would pierce plate glass; but in mechanical power, the total power for instance, we have 80 horse-power instantly exerted, that would disintegrate the material of a tree by lightning; we can use 80 horse-power, but we cannot get it into the same shape.

Q. Can you get it in such shape that it would come within a hundred-thousandth part of the force of lightning? 287

A. Not in the same form; no, sir.

Q. What is the size of the spark, the largest spark you have seen generated by artificial means, and how far has it been projected into the atmosphere?

A. In my presence, I should say, about a 12-inch spark has been projected; and I should think a spark 36 inches has been produced, but I have not seen it; I have heard of it.

Q. Has it ever been projected 20 inches? I ask 288 you about what you have seen or know; has there ever been a spark projected 20 inches, from your knowledge of electrical science?

A. I don't remember of such an instance, but it can be carried from 30 to 36 inches. I have heard of it, but I did not see it.

Q. Isn't it a fact that 20 inches is the most that it has ever been projected?

A. The greatest distance has been, in my experience, 12 inches; beyond that I can not say. 289

Q. You are an electrical expert, and as an engineer and master of the science and from your acquaintance with electrical currents, can you say whether an electrical spark has been projected over 20 inches?

A. I think about 36.

Q. Is that the greatest distance to which it has been put?

A. I cannot at the moment recall any particular 290 instance, but that is my general impression.

Q. How does that come to your mind—from reading?

A. I cannot say.

Q. How do you estimate the respective force of electrical manifestations; for instance, if a spark should be projected 14 inches, and another should be projected 20 inches, how would you be able to estimate the difference in power indicated by those respective distances? 291

A. Other things being equal, the comparative force would be in direct proportion to the distance.

Q. Do you mean the square of the distance?

A. No, sir.

Q. That is to say, as 20 would be to 12; is that what you mean? Give it to us in figures. Would it be as to the square of the distance, the cube of the distance, or just in proportion to the distance?

292 A. I never have experimented on that matter and cannot answer.

Q. Is not that one of the fundamental elements of the science of power; how it is indicated?

A. There is the static current which is not used except to fire charges of dynamite, or something of that sort, and that is a little out of my line, static currents.

Q. So that you do not claim to be a general expert, 293 but simply in those branches which are involved in these electrical currents for these purposes?

A. I am an expert with the currents with which I am familiar and have handled.

Q. You don't claim to be a general electrical expert and familiar with the general laws that govern electrical manifestations and disturbances, and the formulas?

A. I have not had occasion to deal with static electricity.

294 Q. (Question read to witness.)

A. I don't claim to be familiar with lightning.

Q. Or with any electrical manifestations that you have described?

A. I am with commercial electricity.

Q. In other words, you are a commercial electrician?

A. I am most familiar with commercial electricity and the uses of commercial electricity.

Q. But with electricity, and the history of electrical 295 currents and experiments generally, you don't claim to be familiar?

A. I have read as widely on the subject as possible, but I do not claim to make a practice of charging my mind with formulas which are not in daily use.

Q. Would you know where to turn for information that I have just asked you about in that elementary question?

A. I think that I might be able to find it.

Q. Do you know where to go and find it? 296

A. Yes, sir; I think I have a book by S. P. Thompson in my library; I think it is the principles of electricity, but the title, I am not clear as to that.

Q. Have you ever heard of persons being struck by lightning and not being killed?

A. Yes, sir.

Q. Do you think a stroke of lightning is less powerful than one of these currents that you could generate by this alternating system?

A. It is less powerful in this respect, the lightning 297 that fails to kill is less powerful, its time or period is but a fraction of a second, and that same amount of energy might be spread out over a greater period until a greater amount of energy was expended.

Q. Could you, by all the means known to science, generate any current of electricity a one-hundred-thousandth part as strong as a stroke of natural electricity?

A. If you mean a current with an electro-motive 298 force one-hundred-thousandth part as great as a stroke of lightning, no.

Q. Could you, in any sense?

A. Yes, in the sense of actual horse-power.

Q. Do you mean to say you could generate it in the sense of a stroke of lightning?

A. Yes.

Q. Do you know what horse-power a stroke of lightning has? Has that ever been measured?

A. It has been approximated, but never measured. 299

Q. How do you mean it has been approximated?

A. Well, whatever the force expended by a stroke of lightning is, we will have to assume it is one thousand horse-power; we can turn a thousand horse-power into an electrical current and obtain one thousand horse-power in an entirely different form.

Q. I ask you if you can measure lightning by horse-power?

300 A. You can measure approximately the electromotive force required to jump through a certain space. You could, by observation or photograph, get the length of a spark of lightning?

Q. What is the greatest length they have ever been able to find?

A. I could not say.

Q. Would that not be important in this calculation?

A. It certainly would be.

Q. Would you not be surprised to find it was half 301 a mile? Have you never read in your researches of that?

A. Yes, sir, I have recently read a computation by Carl Herings, in his recent book, in which he computes the horse-power of a lightning stroke.

Q. I ask you of the distance that has ever been discovered of a spark of electric lightning—has it ever been known to be computed?

A. I cannot say, possibly it could be done by pho-302 tograph; I think it has been done.

Q. Give us the distance according to that, if you think so?

A. I have no definite recollection; I think I have seen in the John Hopkins Electrical Laboratory photographs of lightning, but I don't remember it.

Q. You don't remember whether it was a foot or a mile?

A. I could not tell accurately at all.

Q. You do know that computations have been 303 made by which the force of it has been computed, from the respective distance it can be sent?

A. I know computations have been made.

Q. But you cannot tell whether it is the square or cube of the distance, or the distance itself?

A. My impression is that Carl Hering has made such a calculation.

Q. You cannot tell whether that computation of their respective forces is the square of the distance, the cube of the distance, or the distance itself?

A. I cannot at this moment. 304

Q. Could you ever tell it?

A. I think so.

Q. Where would you turn for the same information now, in regard to the rule which can be followed as to how far the respective distance indicates the power, whether there is any formula for it?

A. This formula would be the same as the other.

Q. Is there a formula at all?

A. I think there is.

Q. Is it the square of the distance, the cube of the 305 distance, or in direct proportion to the distance?

A. I have already said I do not recollect.

Q. But you do say you can find it in this Mr. Thompson's Principle of Electricity?

A. I think so.

These proceedings then adjourned to July 10th, at 11 A. M.

306

Proceedings of July 10th, 1889.

It was agreed by counsel that a telegram might be sent to Mathew Hale, the only member of the Commission remaining in the State, and try and procure his attendance.

Mr. Brown recalled for further examination by Mr. 307 Cockran.

Q. In the list of experiments which you submitted yesterday, were the animals described there dissected immediately after their liberation from the machine in each instance?

A. In several instances.

Q. Were they in all instances?

A. All of the dissections that were made were made immediately after the experiment.

308 Q. Were they all dissected?

A. Not all.

Q. What became of those that were not?

A. They were burned in the furnaces.

Q. Immediately?

A. No, sir.

Q. How long after?

A. At the end of the experiments.

Q. How long did the experiments last?

309 A. Frequently from about seven in the evening until one or two o'clock; sometimes twelve o'clock. In one or two cases they were later than that; one or two o'clock in the morning before we stopped. In the case of the Columbia College experiments one of the dogs was burned, and it caused such a smell that the other two were left until a cart was sent for to remove them; the horses at Edison's laboratory were removed the next day by means of a cart, and the calves in the experiments were removed by butchers to cut them up;
310 the calves were all cut up.

Q. Were they all dissected? I want to know how long a time elapsed between the removal of those animals that were not dissected and the experiments upon them; how long you had the animals in your physical sight, those which were not dissected?

A. In the Columbia College experiments on the second day that we had experiments there; when I came around to the college on the following day I
311 found two of the bodies of the dogs were still there, awaiting the cart to remove them.

Q. Were there any others that you saw during that length of time after that?

A. No, sir.

Q. In the majority of instances, did the dissection take place immediately after the experiments?

A. What dissections were made were made immediately after the experiments.

Q. Were the majority dissected?

A. No, sir. 312

Q. What proportion was dissected?

A. All of the calves were cut up.

Q. Were they dissected by medical men or cut up subsequently by butchers?

A. The butchers did the rough part.

Q. All the calves were cut up immediately after the experiments?

A. Yes, sir.

Q. The horses, were they? 313

A. No, sir.

Q. Were they dissected at all?

A. No, sir, not to my knowledge.

Q. So that the effect upon the horses—So far as you know there was no examination made of the bodies of the horses after death?

A. So far as I know, no.

Q. And how about the dogs, were they dissected?

A. Several dogs were dissected.

Q. What became of the remains? Were they re- 314
moved immediately after the experiments?

A. All except the two at Columbia College, so far as I know.

Q. Were the horses removed immediately?

A. The following day.

Q. Have you heard or are you familiar with any instances in which men or animals have been revived after an electric shock where they were supposed to be dead. 315

A. I have heard of such incidents, but those cases have never come under my observation.

Q. Where did you read of those, in standard works or in newspaper publication?

A. Most of the recent ones have been newspaper publications.

Q. The instances of revivals after an electric shock?

A. Yes, sir, from alleged severe shocks.

316 Q. Did you take any steps in these experiments to give the animals that you experimented upon a chance to revive?

A. Some of the animals had an abundant chance.

Q. These two dogs you have described, and the horses?

A. Yes, sir, and the horses.

Q. The calves did not have any chance?

A. No, sir.

317 Q. Because the butchers dissected the calves and completed whatever was left undone by the current?

A. No, the calves had no chance.

Q. The dogs had twenty-four hours?

A. Some of them.

Q. And all these dogs you experimented upon, were they killed, actually killed, by the electrical current?

A. Not all. Our experiments were to determine the point which would kill at the various pressures, so 318 that a number of the experiments were at a pressure below the point required to kill.

Q. Did you have any dog that defied all your experiments?

A. There was one dog that we were unable to kill by the highest pressure at a continuous current at our command in the laboratory.

Q. Did you try the alternating current?

A. No, because we thought he had earned the right to live.

319 Q. And was it his tenderness or forbearance toward the continuous current that gave him the right to live, as you thought, or was it because he was a tough subject?

A. The reason that Ajax, which was the name of this dog which was allowed to live, was this, that if I had subjected him subsequently to the alternating current, a number of electricians would have at once rushed into print and said that the dog was so terribly injured by the continuous current that he was in a 320 dying condition, and, therefore, the alternating current had simply finished up the work of the continuous current, and he would not have lived; so I allowed him to live.

Q. Did you kill any dogs with a club?

A. No, sir, not to my knowledge, and not in my presence.

Q. Tell me the names of the persons who operated in the experiments with you?

A. Dr. Frederick Peterson and Mr. A. E. Kennelly. 321

Q. Was Mr. Colgate there?

A. Yes, sir, on one or two of the evenings.

Q. Did you see Mr. Colgate retire behind the screen and take with him a dog upon which you had experimented unsuccessfully?

A. I did not.

Q. Did you at any time hear, or hear it said, or have any reason to believe, that any of these dogs 322 which had been victims of your experiments had been killed with a club, or by any other means except electricity?

A. I have no reason to believe so, and I never heard anything of that kind.

Q. The only dog that escaped was Ajax?

A. Several dogs escaped, as shown by the experiments.

Q. I thought you said that Ajax was the only dog? 323

A. Not the only dog.

Q. Were there several dogs that escaped?

A. There were several dogs upon which we used a light pressure in order to determine where the death pressure was.

Q. Why did you not increase the current upon those which had withstood the lower current?

A. For the reason that it might be assumed that the lower current had injured the animal to such an

324 extent that a slight increase would kill him, and, therefore, would not be a fair determination of the death point.

Q. So that you have not any instances of a dog who had shown his capacity to resist the modified current who received a greater current?

A. In some cases.

Q. Why in some cases and not in others? What rule did you proceed upon?

325 A. Well, for instance, if we subjected a dog, when we started in, at 200 volts pressure of the continuous current, and did not kill him, if our supply of dogs was limited, and if the gentlemen present had come several miles to attend the experiments, we could not afford to allow that dog to get off with that one experiment, so that we increased the pressure until we were satisfied with the result.

Q. What do you mean by satisfied with the result?

A. Until we had reached a point with that particu-
326 lar animal which had killed him.

Q. So that it was regulated somewhat by the supply?

A. Some evenings; yes, sir.

Q. How many evenings did the experiments last?

A. The whole record is given in the book. I cannot tell off hand, but it lasted several evenings.

Q. It has been suggested to me that you furnish us twelve or fifteen copies of your book.

A. I cannot just at preseet, but I will in a few days.

327 Q. I understand that you are interested in, or that you are the inventor of, a plan by which you could tap these electric wires and make them safe by taking off some of the current?

A. I have attempted to describe in several publications means which seems to me will reduce the risk to life from accidental contact on the part of the public with arc-light wires. Those have been given out to the public as a physician would give out to the

public, without patenting, a new remedy which he 328
thought was effective.

Q. It is not a patented remedy at all?

A. No, sir.

Q. And you never have had any patent?

A. Not on this apparatus.

Q. Have you had any patent on any apparatus of that character?

A. I have had twelve or more patents issued to me for electric-lighting devices.

Q. Have you any device for taking the current 329
from a wire charged with electricity and bringing it into houses?

A. I have had several patents on electric-lighting devices.

Q. Have you had any patents issued to you for any device or invention for carrying currents from heavily-charged wires suspended in the air with safety into houses?

A. No patent which would be described by your 330
question.

Q. Have you had any patent on any device of that character?

A. I have had patents issued to me for apparatus to which the current is brought from wires, but no patent for means of bringing it into houses.

Q. Is that an apparatus that would lessen the danger in its use?

A. No, sir.

Q. What would it be used for? The devices that 331
you have described?

A. There were a large number of them, and the general idea was to protect electrical devices used in connection with it, but not to protect life.

Q. Was it to reduce the danger to life in any way, incidentally?

A. No, sir.

Q. The Wheatstone bridge, of which you spoke

332 yesterday, has it ever been tested as a means of measuring the resistance of human life, to your knowledge; the resistance of the human body, by any scientific authority in the world as a means of ascertaining the electrical resistance of human organism?

A. Do you mean whether the bridge has been used for such a purpose; if so, it has been used.

Q. Has it ever been tested by any recognized authority for the purpose of ascertaining the electrical resistance of human organisms?

333 A. I do not understand whether your test applies to the testing of human resistance or testing the ability of the Wheatstone bridge to measure it?

Q. I mean the resistance of any organism?

A. I do not know whether your question applies to whether the Wheatstone bridge has ever been used to measure the resistance of animals or whether a test of the accuracy of the Wheatstone bridge has been made for such a purpose.

334 Q. The latter is my question?

A. I do not know of such a test.

Q. How do you know it is accurate except from its capacity to measure the resistance of wires and metals?

A. Except from the fact that if the apparatus can measure the resistance of a substance which is composed wholly of metals, or in part of metals and conducting fluids, it can be used for the purpose of ascertaining the resistance of conducting fluids.

Q. I understand you to say, Mr. Brown, that be-
335 cause it can measure the resistance of metals and wires you have therefore concluded that it will correctly measure the resistance of living organisms?

A. Yes, sir; it will.

Q. Am I correct?

A. Yes, sir.

Q. Have you ever subjected it to the common-place test of measuring the resistance of the same animal by two different Wheatstone bridges, to see if the two instruments record the same?

A. Not that. I own but one Wheatstone bridge. 336

Q. In the experiments which were to decide the capacity of these machines in inflicting death, did it not occur to you to get the use of a second Wheatstone bridge?

A. It did not occur to me it was necessary.

Q. And in this device, which has been obtained for the execution of criminals, it depends entirely upon the accuracy of this Wheatstone bridge in measuring the resistance of the human organism, and that resistance, you conclude, can be measured by the Wheat- 337 stone bridge, because the Wheatstone bridge has correctly measured, and is known to accurately measure, metals. Am I correct?

A. No.

Q. State in what I am wrong?

A. The use of the Wheatstone bridge in obtaining the resistance of the subject is simply a means of precaution against accidents, and it is not a necessary part of the execution at all, in my opinion, and the 338 current can be supplied by the apparatus furnished, which, with sufficient electrodes, passing through the human body, the electrodes being firmly fastened, and with an abundant supply of conducting fluid to prevent burning, would inevitably kill, irrespective of any measurements which may or may not have been made.

Q. But the balance of my statement which I have made is correct, except that the Wheatstone bridge is essential to the appliance? 339

A. Yes, sir.

Q. You say that the Wheatstone-bridge machine can be relied upon to indicate the point at which it will kill. What is the use of the Wheatstone bridge in connection with it?

A. As a protection against accidental breakage in the wires, or poor conductors between the surface of the electrodes and the surface of the criminal, and as a means of scientific record.

340 Q. With the Wheatstone bridge there would be some inaccuracy in that respect?

A. There might be some.

Q. But without any measurement at all this current which you have described could be relied upon to kill a human being—this current which is to be supplied with this dynamo?

A. Without any measurement of the resistance of the subject, but there must necessarily be measure-
341 ments of the pressure at the dynamo and at the point of application.

Q. And your belief in this respect, as I understand from your former testimony, is based upon the fact that certain men have been killed by it?

A. Men have been, under very unfavorable circumstances.

Q. How do you know that when you don't know the circumstances, according to your former testimony?

342 A. People in whom I have confidence, and who have knowledge, have written to me in regard to it.

Q. Did you see the man killed?

A. No.

Q. And you never were present when a man was killed?

A. No, sir.

Q. And you never knew the circumstances, of your own knowledge, under which the man was killed?

343 A. Yes, sir.

Q. Of your own knowledge, from your own observation?

A. In one case, yes.

Q. Where?

A. The case of a man named Streiffer, killed in front of No. 7 East Broadway—I saw the mechanism which killed him.

Q. How do you know it was?

A. From the testimony given at the coroner's inquest, and also given—

Q. I asked you of things that you had seen or knew of your own knowledge, and not of things you heard in testimony. 344

A. I did not see the place at the time the man was killed, but I saw it the day following.

Q. You have never known anything about the conditions, the physical condition or otherwise, of the person killed prior to the contact with the electrical fluid?

A. No, sir.

Q. And because persons have died under these circumstances, unknown to you, and in many instances under conditions which you do not understand, or did not see, and they died from a current, you assume that it was caused by this current, and therefore conclude that it will inevitably kill; am I right in that? 345

A. Yes, sir.

Q. And have currents equally as strong as those been received by persons which have been fatal; have been received by others and not proved fatal? 346

A. Not where the contact was a fixed one, and where the contact was made through an amount of moisture.

Q. Do you know that any person has ever received a current with the contact complete and full, as it could be received, without fatal results?

A. I don't know it.

Q. In speaking of this measurement of this current that you have described, your measurement is entirely by volts? Or you have described your measurements by volts when you spoke of the current that is designed to be given to a person condemned to death under this law? 347

A. I spoke of the pressure by volts, but there is also supplied an ammeter to be placed in series with the criminal, which will indicate the number of amperes.

Q. What is it that indicates the electrical force of these experiments, the electro-motive force that you rely upon to cause death?

348 A. It is the electro-motive force multiplied by the current which would be expressed in horse-power.

Q. Is it the electro-motive force or the energy which you rely upon to cause death?

A. The electro-motive force multiplied by the current would give us the electrical energy expressed in terms of electrical horse-power, and it is that which is relied upon to kill.

Q. The electrical energy represents the electro-349 motor force multiplied by horse-power multiplied by what?

A. The electrical energy is obtained in a calculation by multiplying the electro-motive force or pressure expressed in volts by the current expressed in amperes, which gives a product of Watts, which is a fraction of a horse-power.

Q. And then it is by these multiplications you reach the net horse-power of electrical current?

A. Yes, sir.

350 Q. The measurement in volts you have given us, but you have not given us any measurement in amperes. In the case of this machine, which you are going to use upon human beings, the ampere represents what, in electricity?

A. It represents the current.

Q. What does the volt represent?

A. The electro-motive force. The volt describes the pressure and the ampere the volume.

351 Q. Illustrated by the use of water, for instance, water passing through at a given volume, a tube one inch in diameter has a certain pressure, a nominal pressure; now if that be compressed into the tube half an inch in diameter with the same volume of water being pressed through it, there will be an increase of pressure which will become a more forcible stream, and that quantity of water under a high pressure exercises a greater force than an equal quantity of water under normal pressure?

A. Yes, sir. 352

Q. Would that serve as an illustration for the electrical term—would there be any analogy?

A. There would be an analogy to a certain extent; an analogy might be made with water, but in the flow of water through the pipes the friction of water flowing through the pipe does not follow the same law as the flow of electricity in conductors, but with that difference, a general analogy may be made between the flow of water in pipes under a varying pressure and the flow of electrical current through conductors. 353

Q. That is one of these measurements that represents what would be the volume of water; if we follow out the analogy, would there be any force that is represented in the volume of an electrical—would that represent the force with which that was projected?

A. Yes, sir.

Q. How? Represent the volume?

A. The amperes would represent a volume or the amount of water flowing in the pipe and the volts 354 would represent the pressure or the speed of water flowing in the pipes.

Q. Could you measure the energy of an alternating current with an ammeter, or could you calculate it?

A. No, not with an ammeter.

Q. You say you have an ammeter for measuring the current to be sent through the body of the criminal?

A. Yes, sir. 355

Q. What is that? What is that for?

A. We would be required to get two factors, both the volts or the pressure and the amount of amperes in order to get the electrical energy, and in measurements, unless we have the resistance of the object through which it flowed, it would be valueless without both these factors.

Q. Can you get the energy of an alternating current?

356 A. Yes, sir.

Q. Can you compute it now, in the case of any animal you killed; give is to us right here on a piece of paper?

A. Approximately.

Q. Could you do it accurately, if you did it at all?

A. Not in this case.

Q. Why not?

A. For this reason: we measure resistance of animals, and we therefore have one factor; the resistance
357 is one factor in the equation; we measure the electromotive force, which is one of the factors in the equation, and if that resistance had remained stationary you would have then been able to determine exactly the amount of energy, because we would then obtain the amperes by substitution; in the equation the current strength in amperes equals the volts, or the electro-motive force divided by the ohms or the resistance; but the moment the current was applied the resistance
358 of the animal dropped.

Q. Why did you not take it at the dropping point?

A. We cannot measure the resistance of an animal at the same time that a current from the alternating machine is passing through it.

Q. Then you mean to say you cannot do it? The question is, can you ascertain the energy of an alternating current passing through the body of living organism?

A. Yes, sir; you can do it approximately, with a
359 proper instrument.

Q. You said you did not do it because it was not possible on account of the dropping of the resistance?

A. We did not because we could obtain no ammeter for measuring the alternating current.

Q. Can you measure an alternating current at all with a meter?

A. Yes, sir.

Q. Sure about that?

A. Yes, sir. 360

Q. Have you ever done it?

A. I have never been able to do it, but I have in my possession at present a meter made for that purpose, calibrated by a reliable concern, to measure the amperes of an alternating current at 290 alternations per second. I believe that with that apparatus, and with a suitable volt meter, the amount of energy passing through any conductor, an alternating current can be obtained.

Q. Do you know anything about it? 361

A. Yes, sir.

Q. Give me the extent of your knowledge, eliminating the question of belief. What is the extent of your knowledge, apart from your confidence in this concern and your belief that with something else thrown in you might do something? But as to whether the alternating current can be measured with an ammeter, have you any knowledge upon that subject?

A. For instance, the Westinghouse Company, 362 which represents itself to be a reliable concern in supplying accurate instruments, advertises a meter for measuring the alternating current, and it guarantees that it is correct.

Q. Did I not ask you to give me what knowledge you have? You speak to me about an advertisement. I ask you if you have any knowledge or know anything as to whether the energy of an alternating current can be measured by an ammeter? 363

A. I have never seen it done.

Q. And you don't know whether it can be done? Have you got any knowledge of your own upon the subject?

A. I have never done it, but I see no reason why it cannot be done.

Q. You have done everything in electricity that could be done in the ordinary range of observation?

364 A. No, sir.

Q. There are things you have not explored?

A. Yes, sir; I suppose so.

Q. And even this question which I put to you now is a question which might arise in what you call commercial electricity?

A. Yes, sir.

Q. Is not the electrical energy of any current the precise thing which would be fatal in the case of a person to whom it was applied?

365 A. Yes, sir.

Q. And the amount of energy is the thing to be determined?

A. Yes, sir.

Q. And you have never computed anything of these experiments which you have made?

A. Yes, sir; with a continuous current we had an ammeter and we made measurements.

Q. Now, Mr. Brown, I want to ask you a question, 366 which I put with reference to the determination of the energy of the alternating current used in your experiment. Did you measure it in any experiment?

A. We measured the electrical force, but not the current.

Q. You understand definitely what I mean by electrical energy. I mean electrical energy of the current which was used?

A. No, sir.

367

Examination by Mr. Poste:

Q. When you say you did not actually measure the current or the intensity of the current in these experiments, when you made use of the alternating current, did you or could you by Ohm's law ascertain the intensity of the current?

A. Yes, sir; approximately.

Q. What do you mean by Ohm's law?

A. The Ohm's law is the law governing the flow of 368 electrical currents in conductors. It is expressed by the formula: The current flowing in any circuit equals the electro-motive force used, divided by the resistance encountered.

Q. Is that law recognized by all electricians the world over?

A. So far as I know, yes.

Q. Did you ever hear of any single dissent from it?

A. No, sir.

Q. And knowing the resistance and voltage, the 369 current may be ascertained in amperes?

A. It may.

Q. Then is it the derivation of the Ohm's law which is recognized by all electricians, that the electrical energy of a current is indicated by the product of amperes and the electro-motive force?

A. It is.

Q. Having then ascertained the resistance, you determine easily, by the application of that law, the cur- 370 rent without the use of an ammeter, and having determined the current you can easily determine the intensity of the current?

A. Yes, sir; the energy of the current.

Q. Now, state whether or not the meter in the application of the experiment of the current may be used or not, as a test of check upon the Wheatstone bridge itself?

A. It may be so used. 371

Q. State whether or not the ammeter is recognized by electricians as a reliable test for electrical currents?

A. Yes, sir.

Q. So then, in determining and making the experimental currents you are not limited to use one instrument to determine the resistance, and you have in addition to the Wheatstone bridge what?

A. We have the ammeter, and volt meter, and two of these give the means of calculating the third.

372 Q. Then you have in reality how many checks upon it?

A. Two checks upon every measurement, in case all three instruments are used.

Q. Some inquiry has been made of the effect produced upon parts of the body by the application of electric currents. Explain how such an effect may be produced upon the hands?

A. Well, say in case the hand grasps the conductor
373 of a small size like an ordinary electric-light wire, there would be points of contact which would have less pressure than other points, and that point having the less amount of pressure would not receive as much current as the point or points receiving the greatesr amount of pressure; then that would convey the majo part of the current through a contact of small area; and as soon as the surface of the skin was heated and dry at that point, the greatest flow would then go to the next point of greatest pressure having the greatest
374 amount of moisture, and so on, until the moisture had been thoroughly dried or the contact broken, or until the skin itself should be heated to such an extent that it was carbonized and a spark ensued between the wire and the hand, and that spark would continue to grow in intensity if the pressure of the electric current was constant, and would result in a severe burn.

Q. From your experience and observation as an electrician, by grasping in that way what kind of a
375 conductor is made with the hand in case the contact is made. Is it close or otherwise from the effect of the conductor upon the hand or upon the will power, as you indicated yesterday?

A. If it was a small conductor the hand might be clinched firmly on it by the passage of the current, and yet not produce a great pressure upon the conductor itself. The pressure would be exerted by the fingers on the palm of the hand, and provided it was such a small size, like an electric-light wire, the contact would not be close.

Q. State whether the burns result from a close or loose grasp in such a case. 376

A. It results from either a loose grasp and failing of the contact made or a brushing on the surface used, and the contact is then broken, leaving it to be filled by an arc itself and breaking the arc; a burn of that kind might be very serious owing to the spark that might follow several inches, and carbonize instantly a large area.

Q. State whether or not there is any difficulty in making a perfectly close application of the electrodes to the human body for the purpose of applying the electrical current: we will say for execution? 377

A. There is no difficulty in making such a contact.

Q. If such a contact is made, and the electrode be properly moistened, is there, in your opinion, any danger of burning of the parts to which the electrode is applied?

A. No, sir: there is no danger if an abundant supply of fluid is present and kept present. The rise in temperature which then can be reached would be the boiling temperature of that fluid, which would be insufficient to burn the skin. 378

Q. Well, if the fluid is kept continuously supplied, would the boiling point be reached?

A. It would not be reached if there was an abundant supply of it, and the supply was maintained.

Q. Is there any difficulty in maintaining such supply?

A. Not at all. 379

Q. Now, giving your opinion, based upon your observation and your experiments and reading and knowledge as an electrician as to the intensity of the force requisite to kill a man of average resistance if applied to the head and feet, is it your opinion that it can be done?

A. Beyond any doubt. The amount of pressure of one to two thousand volts of alternating current, with

380 suitable electrodes of proper size passed through the human body from head to foot, would be sufficient.

Q. That is a man of average resistance? But take a man of the resistance of 50,000 ohms, would that vary your opinion upon that question?

A. It would not.

Q. Then you think that with a voltage of from one to two thousand volts a man with the resistance of 50,000 ohms would be killed by the electric current?

381 A. If it were properly applied, and the surface of the electrode was kept wet.

Q. I would ask you then within what period of time would death ensue, in your opinion.

A. In my opinion within fifteen seconds.

Q. State whether or not then the period within which death would ensue, the electrodes, arranged as you have described, would be appreciably heated?

A. They would not.

Q. State whether or not, when you speak of the
382 temperature of the electrode being raised to the boiling point, you refer to definite periods of time required to raise it to that point?

A. The period required would, of course, depend upon the amount of voltage, the electrodes and the persons, and the size of the current. A very small current would require a long period to raise them to the boiling point. I doubt if a pint of salt water could be raised to the boiling point in any length of time by
383 a current that would flow through the human body with a pressure as above stated. The surface radiation of the electrodes and the body would carry off the heat before it could approach the boiling point.

Q. I call your attention to the matter of lightning. Has that subject been treated on by electrical authorities somewhat?

A. It has.

Q. What do they say upon that question as to lightning conforming with the laws of electrical currents, more or less under the control of men?

A. It has been universally recognized that lightning does not follow the rules of electrical currents under the control of man. 384

Q. In answer to a question by Mr. Cockran, yesterday, to call your attention to a question, he asked you if a case had occurred in which people had lived after the effects of lightning? State whether or not the electrical experts upon that subject recognize the possibility of a person living having received a stroke of lightning?

A. It is conceded that it is impossible for a man to live who has received a full stroke of lightning, if he received the discharge itself. A man may have suffered from a lightning discharge in his neighborhood and been seriously injured, and recovered subsequently, but there is no instance on record, to our knowledge, where a man has received a thunderbolt itself and lived. Such a thing, in my opinion, is impossible. 385

Q. Is it, or is it not, a law of electricity that an electric current induces a surrounding state of electricity in the atmosphere? Is anything known as to the induced state? 386

A. A cloud or other body charged highly with static electricity would induce a charge of opposite electricity in all contiguous sections or surfaces of the earth.

Q. Is it regarded by electricians that a current of electricity passing over a telephone wire produces a peculiar electric condition of the immediate surroundings? 387

A. It does.

Q. Is it true that an electrical current passing induces an electrical current in an opposite direction?

A. An electrical current flowing in any conductor will induce a current in the opposite direction in a conductor having a closed circuit.

Q. Some question has been made as to static elec-

388 tricity. What do you understand by static electricity?

A. Static or frictional electricity can be produced by friction; for instance, a piece of glass in a silk handkerchief; or it may be by processes of nature, as indicated by lightning.

Q. And does it ever refer to the condition or current of statical electricity?

A. It refers to the condition.

389 *Examination* by Hon. W. Bourke Cockran:

Q. State whether or not, in your opinion, a current of electricity known as the lightning flash produces an induced current?

A. It does produce an induced current in its vicinity.

Q. State, in your opinion, as to whether that induced current may cause accident or injury to persons in that vicinity?

390 A. The induced current may cause, and has caused, serious accidents in many cases to persons in the vicinity of the discharge of lightning.

Q. You have spoken of static electricity. What term would you apply to that electricity which is produced by dynamos; what term is applied to it?

A. It might be called dynamic electricity, although, properly speaking, that adjective could be applied to any form of force producing an electric current.

Q. My question aimed at what was the name by 391 which it was usually known among electrical engineers, if there is any name?

A. The battery current is known as the voltaic current, but I do not know of any term to distinguish a current produced from a dynamo, except a dynamo-electric current, and from a magnetic machine is produced a magneto-electric current.

By Mr. Quinby:

Q. Do you know, from your own reading, what is laid down by the best authors as to the velocity of nerve sensation? 392

A. It is, to my recollection, about 170 feet per second.

Q. What is the velocity of the electrical current to be furnished, as you understand, by this apparatus?

A. About a million times as great.

Q. So that if a current is applied sufficiently strong to produce death the culprit will never appreciate, as you understand it, the effect of the current at all, the current being so much more rapid than the nerve sensation? 393

A. A fatal current of electricity may destroy the life of a subject at a quicker rate of speed than the transmission of nerve sensation, and therefore it would be painless.

By Mr. Poste:

Q. (Witness shown paper containing diagram of Wheatstone bridge.) What is that? 394

A. A diagram representing the ordinary connections on an apparatus known as the Wheatstone bridge.

Q. Prepared by yourself?

A. Yes, sir.

Q. Is it correct?

A. It is, as far as I know.

Paper offered in evidence and marked Exhibit "A" for the Warden. 395

By Mr. Cockran:

Q. Since when did you learn anything about static electricity?

A. I remember studying about it in school when I was a boy.

396 Q. Did you not tell me yesterday that you did not know anything whatever about it, and that your knowledge was confined to commercial electricity?

A. I did not tell you I did not know anything about it; I told you I didn't profess to know everything.

Q. Didn't you tell me you didn't know anything about it as an expert? That you did not profess to be an expert on that subject, and didn't have any extensive knowledge on that subject?

397 A. To that effect.

Q. Did you not say that your knowledge, or special knowledge, was confined to what you would call commercial electricity?

A. My special knowledge.

Q. What is this dynamic electricity you speak of? Is it what you meant by commercial electricity yesterday?

A. I did not use the term dynamic electricity.

398 Q. What term did you use in answer to Mr. Poste as to the various forms of electricity?

A. I called the battery current the voltaic, from the dynamo, dynamo-electric, and from the magneto machine, magneto-electric.

Q. What did you refer to when you spoke of commercial electricity and currents?

A. I have just named it?

Q. Under what head?

A. Under the three heads.

399 Q. Why do you abandon the term of yesterday; what is the reason you don't stick to commercial electricity?

A. I was asked to define the currents and I defined them.

Q. Have you been reading any since I saw you yesterday?

A. Not to any great extent.

Q. To any extent?

A. Yes, sir, I read the *Sun* coming down. 400

Q. Did you read any works on electricity, or consult any works?

A. No, sir.

Q. Did you converse with anybody as to the terms that might be used in electrical experiments?

A. Yes, sir.

Q. Did you converse with anybody on the subject of testimony?

A. No, sir, not last night. I conversed this morning with Mr. Poste on this subject. 401

Q. Could you tell us now anything upon the subject I asked you about, the respective distance a spark could be projected into the atmosphere by the various artificial means known to science?

A. My impression yesterday; it was at least 36 inches.

Q. Have you taken any steps to verify that?

A. I took no steps to verify it, but a gentleman I met this morning volunteered information with regard 402 to it.

Q. Have you any knowledge now as to the distance a spark of lightning can be projected?

A. No definite knowledge.

Q. Don't you know anything about the force that would be indicated by the respective distance?

A. Any computation of the force would necessarily be scientific guess-work.

Q. Isn't there any basis upon which it could be 403 computed?

A. There is an accurate test that can be applied to the movement of lightning.

Q. Do you know the distance which it can be projected, the given distance of a spark; is there any law upon which a computation can be made?

A. To the best of my recollection the authorities disagree upon that subject.

Q. Can you or will you tell us anything about it?

404 A. I know there is a difference among authorities.

Q. And therefore there is no well-settled basis of computation known to scientific authorities: the authorities differ about it?

A. Yes, sir.

Q. Therefore there is no settled rule?

A. There is no settled rule absolutely for the computing of a discharge of lightning.

Q. You have said something about things conceded
405 by all electrical schools, as to the effect of electrical currents: things recognized; do you know anything about the electrical schools?

A. I don't think I have used the term electrical schools.

Q. If you have used that expression, did it have any meaning to your mind, as used by you?

A. Electrical school or schools?

Q. Either one. Take the electrical school first, and the electrical schools afterward?

406 A. An electrical school is a place of learning, where electrical science is taught, of which there are several in this country.

Q. And does schools convey to your mind the plural of school?

A. Yes, sir.

Q. That is what you meant?

A. Well, there is a general use of that term, but I don't at the present time recall having used it myself.

407 Q. How do you understand it, what it means, this expression school or schools?

A. It might mean, as you say, a school of medicine, an Allopathic school, or a Homeopathic school.

Q. Do you understand it in that way?

A. Yes, sir.

Q. Do you understand in electricity that there are separate schools as there are in medicine?

A. Not exactly that, but there are people holding different beliefs in regard to electricity.

Q. Are they divided into separate schools which hold a common belief? 408

A. No, sir; not exactly that. It is simply a division of opinion.

Q. You have been asked about Ohm's law, and have answered Mr. Poste that it measured with absolute accuracy.

A. I did not make any such statement.

Q. Please state what you did say in answer to Mr. Poste, that by Ohm's law you could ascertain the energy of any electrical current? 409

A. I stated that, according to Ohm's law, if two factors in the equation were given the third could be obtained.

Q. Does Ohm's law apply at all to alternating currents?

A. Yes, sir.

Q. And that you swear to?

A. Yes, sir.

Q. How do you know; did you ever test it? 410

A. Of course there are peculiarities concerning alternating currents, which will, under different circumstances, cause them to behave differently from continuous currents.

Q. I ask you, have you ever tested it?

A. I have tested it on animals for certain purposes.

Q. Did you test it with reference to animals, using Ohm's law?

A. I used Ohm's law to see at what point it will kill. 411

Q. Did you test the application of Ohm's law to the alternating current?

A. No, sir.

Q. And you have also told us, according to your reading, that a man never received a shock of lightning and recovered?

A. Yes, sir.

412 Q. What is the extent of your reading on that subject; what authorities have you read on that subject?

A. I believe that Mr Sprague has written something on that subject; Mr. John D. Sprague.

Q. What is the title of his work?

A. Electricity in the Service of Man.

Q. Give us some of the other books you have read?

A. I don't remember the titles of all the books I have read.

413 Q. Give us the authorities and let us have some idea of the extent you have covered in your researches?

A. I have made a practice, as far as my time would allow me, to read, look over, or go through, every electrical work that I have been able to get hold of, and I have quite a number of books in my possession, and I have several libraries under my control, but I cannot give the names of the books off-hand.

414 Q. Give us some intimation or side-light upon the course of your researches. For instance, you say you have looked over and gone through certain works; there is a difference between going through a book and looking it over, and studying the subject so as to be able to give an answer as to how far a stroke of lightning is necessarily fatal to a human being. Have you ever given the subject any study?

A. In a general way.

415 Q. What do you mean by in a general way?

A. I mean I have not sat down as a lawyer does when he wants to post himself, and looked through a thousand books, or a hundred books, and ten thousand different cases, and select the ones which he thinks would bear on his case, but I have, as a lawyer would naturally do, following the general run of decisions to know that certain things, without referring to a vast law library, were in the main true.

Q. But you claimed you knew nothing about static electricity, and had no special knowledge of it?

A. I said that I claimed to have no special knowledge on the subject of static electricity. 416

Q. I ask you if you have any knowledge on that subject outside of what Mr. Poste, or myself, or anybody, would have an idea of it; have you given it any study, so as to know all the effects upon the human frame?

A. No, sir.

Q. How could you study one without studying the other?

A. Very easily.

Q. Without studying lightning itself, you have studied its effect upon the human frame? 417

A. How could any one study lightning itself?

Q. Will you answer the question and tell me. I ask you this question; if you claim you have given any special study to the effect of this form of static electricity upon human life; that is, lightning?

A. If by special study you mean to say I have taken occasion to go and examine a corpse that has been struck by lightning, no. 418

Q. You know very well I did not mean that.

A. I really do not know what you do mean.

Q. Do you know what is meant by the word study?

A. Yes, sir.

Q. You know by study it means the observation of things and of books, the reading of books?

A. Yes, sir.

Q. And you have undertaken to say to Mr. Poste, as an expert, that lightning could not strike a person and that person survive. Do you know anything about what the books say on that subject? 419

A. Yes, sir.

Q. What books?

A. I mentioned one work.

Q. You named one work by Sprague?

A. Yes, sir.

Q. Give us another.

A. I cannot at the present moment recall any other special book.

420 Q. So that the book that you had in mind when you answered Mr. Poste was this book of Sprague's?

A. And my general knowledge of the subject.

Q. You say you have no general knowledge or special knowledge?

A. I say I have no special knowledge of the subject.

Q. Do you claim to have any knowledge, only the knowledge that any ordinary observing person might 421 have on that subject?

A. No.

Q. You speak as any reasonably observing person would who had not given it special study?

A. Yes, sir.

Q. As far as its effects upon the human body?

A. Yes, sir.

Q. You have read Sprague's book?

A. Yes, sir.

422 Q. What is the title of the book?

A. Electricity in the Service of Man.

Q. Are you sure that Sprague's book treats of that?

A. Yes, sir.

Q. Did you ever read Dr. Franklin's experiments with lightning?

A. Yes, sir.

Q. Did you ever know that he had received an electric shock?

A. It is so reported, but I doubt if he received the 423 full force.

Q. What do you mean by the full force?

A. I mean if he was actually in the path of the thunderbolt.

Q. You claim to know more about it than he does?

A. I mean the current passing through him; through his body.

Q. I ask you if you know anything about it? Are you familiar with the works of Dr. Franklin upon that subject, and upon the subject of his experiments? 424

A. I have read his works, but it is some years ago.

Q. Do you claim now to be familiar with them?

A. No, I do not.

Proceedings of July 11th, 1889, 10.30 A. M.

FRANKLIN L. POPE, called and sworn as a witness on behalf of the Relator, and examined by Mr. Cockran, testified as follows: 425

Q. Where do you live?

A. In Elmore, N. J.

Q. What is your occupation?

A. I have been an electrical engineer for a number of years past. I am at present acting as an expert for the Westinghouse Electric Company.

Q. How long have you been an electrical engineer? 426

A. I have been connected with the electrical industries of one sort and another over thirty years; ever since I was a boy; I have been engaged in engineering work to a greater or less extent for about eighteen years.

Q. Are you connected with the Institute of Electrical Engineers?

A. I am; I was the second president of it, and have been a member of the Council for several years. 427

Q. As we employ the term electrical engineer, as it has been used for the last couple of days, is there any particular qualification which a man must possess in order to be an electrical engineer?

Mr. Quinby:

I desire to enter an objection here, that it is not a proper inquiry.

428 Q. I ask the question as we have used the term electrical engineer for the last couple of days. Is there any particular qualification which a man must possess in order to be an electrical engineer?

A. Strictly speaking, I think not, except that he must have, or should have, a good practical knowledge of the application of the electricity in the industrial arts. Some five years ago an Institute of Electrical Engineers was organized and most of the practical engineers in the country now belong to it, but not all of
429 them.

Q. Is the Institute of Electrical Engineers the same as the Institute of Civil Engineers?

A. It is founded substantially on the same basis, but is a much younger body.

Q. And among civil engineers, the qualification of a civil engineer is indicated by his membership in the Institute, is it not?

A. Yes, it is usually so considered.

430 Q. Among electrical engineers, does the same idea hold good, the same principle?

A. Yes, sir; the same principle.

Q. Were you here during the testimony of Mr. Brown?

A. Yes, sir; during most of it.

Q. You have, I suppose, become familiar with the manifestations of electrical currents in the course of your experience?

431 Mr. Quinby:

That is leading.

Q. I will change the question and ask him: Have you become familiar with the manifestations of electrical currents?

A. I think I may say I am quite familiar with them. I have been engaged in almost every branch of electrical business, at one time or another.

Q. Have you ever observed the effects of electrical currents upon human beings? 432

A. Not to any great extent.

Q. Have you at all?

A. I have experienced some of the effects myself, and have observed the effects upon others, but in no case where the results were serious.

Q. Can you tell from any experiments you ever practiced yourself to show the susceptibility of the different living organisms to electrical influences?

A. Yes, sir: I have made what might be termed 433 experiments of that sort, not with the view of ascertaining anything particular, but as a matter of curiosity; for example, the placing of a number of persons in line with their hands joined—

Mr. Quinby:

I object to this.

Witness continues:

434

—and passing a current of gradually increasing strength through them and observing the results.

Q. Tell exactly how that experiment was made, where it was done, and what the effects were, so far as you could observe them?

A. The reason of it's being done? It was done from motives merely of curiosity. A number of persons joined hands and a current was sent from what is termed a medical battery through them, and it was 435 constantly increased, and as each one got all he could stand he dropped out of the ring and we kept on with the rest in order to see who could stand the most of it.

Q. What was the result. Did they drop out together, or was there much difference between them?

A. We found a great difference. Some were very sensitive to it, and it produced no apparent impression at all upon some others.

Q. When you say it produced no apparent impres-

436 sion, do you mean the full force of the battery, or the first mild current?

A. I mean when the current of the particular machine that we use, the power of the current, would produce no effect upon the nerves of some people.

Q. And while a much milder current would cause some other people to let go?

A. Yes, sir.

Q. Did you find any two that let go about the same time, or was the difference marked in each? 437

A. There were a great many different grades of difference; there were eight or ten persons and they varied all the way from a little to a great deal.

Q. You heard yesterday about the Wheatstone bridge?

A. Yes, sir.

Q. Did you hear Mr. Brown testify that the Wheatstone bridge was to be used to measure the resistance of the person to be executed, a human being. Are you
438 able to say whether the Wheatstone bridge is able to record the resistance of living organism?

A. I do not think it possible to determine it with much accuracy. Not because of any fault in the bridge, but because of the difficulty to determine the resistance of living organism.

Q. You know what a Wheatstone bridge is?

A. Perfectly well.

Q. What is it used for in the electrical business?

439 A. It is principally used to determine the resistance, or the electrical resistance, of different objects, usually metallic wires and pieces of metal, and one thing and another.

Q. Is it an accurate means of measurement in those respects?

A. Perfectly accurate.

Q. Have you ever had occasion to test its capacity to measure the resistance of a living organism?

A. I have tried the experiment as a matter of curiosity, since the testimony yesterday.

Q. When did you try it? 440

A. This morning.

Q. Where?

A. At the electrician's office in the Western Union Telegraph Company.

Q. Will you please describe the result of your test? Describe exactly what you did, and what the results of the experiment were.

A. This test was made by means of a Wheatstone
bridge, which is used by the Western Union Company 441
for the measurement of their wires and instruments
and apparatus, and they keep it set up all the while.
The test was made by Mr. G. W. Gardiner, who is in
charge of the apparatus and does all the work for the
Western Union Company, and under my direction
and supervision; I checked all the measurements myself.
I took hold of two metal electrodes a little
over half an inch in diameter, having wet my hands
with a sulphate of zinc solution, and then the resistance
of my body from one hand to the other, through 442
my arms and across the chest, was taken the same way
as any other conductor, by means of the bridge and
the galvanometer. The experiment was varied in this
way only, the measurements were taken with different
electro-motive forces; that is, the bridge was operated
by different degrees of electro-motive force. I noted the
results on a piece of paper and they are as follows:

(Witness produces memoranda and reads.)

1 volt	- - -	6,300	ohms	resistance. 443
10 volts	- - -	5,140	"	"
50 "	- - -	3,850	"	"
100 "	- - - -	3,500	"	"

—showing that the apparent resistance as determined by the bridge varies according to the amount of electro-motive force used in making the test, and showing the apparent resistance not much more than half with 100 volts that it is with one volt.

444 Q. Suppose that it had been metal that had been subjected to the test, or wire, would it make any difference in the result of the voltage that was applied?

A. No, sir; if it had been a piece of metal or any inorganic substance, generally speaking it would not have been the same; there would have been the same result with 100 volts as with one volt.

Q. The resistance is not at all affected by the quantity of voltage?

A. Not appreciably.

445 Q. When you come to test the resistance of a piece of metal it would show the same resistance by the Wheatstone bridge with one volt as with 100?

A. It would; it would give the same result tested by different instruments and different observers.

Q. And it is a perfectly accurate test as a means of measuring metals?

A. Precisely as much so as if you should send a bean-pole to be measured by different persons; they

446 would all give you the same result.

Q. It is as accurate as that. Can you account for the failure of the Wheatstone bridge to record with the same degree of accuracy the resistance in the case of a living organism, like yourself, when the different voltage is applied?

A. I can tell what I conjecture is the reason; I don't know as I know anything certain about it.

Q. So far as known to electrical science, are you

447 able to solve that—so far as the science is now advanced?

A. I think it is perfectly well settled that the reason of it is the chemical action of the current upon the fluids of the body.

Q. And that chemical action is such as to, in your judgment, affect the liability of the Wheatstone bridge as a means of measuring the resistance in the human body?

A. Yes, sir; I think it affects any means whatever that are known.

Q. As to the Wheatstone bridge particularly. 448

A. As to the Wheatstone bridge particularly, yes, sir; or any other method.

Q. Is there any means known to electrical science, so far as you know, that would measure the resistance of living organisms?

A. I don't see how it can be done with any approach to accuracy.

Q. Is there any means known to electrical science, I don't mean within your personal knowledge, but so far as you know, are there any means known by which 449 the electrical resistance of a living organism can be determined?

A. I don't think there is any means known that would determine in the manner we can determine the resistance of an inorganic substance. I mean to say that if you were to send a man to each of half a dozen electricians to be measured, there would not any two of them give approximately the same results.

Q. That applies to all living organisms? 450

A. Yes, sir.

Q. And it is not peculiar to man; it is so with all living organisms?

A. And more than that, my experience indicates that the same person measured at different times would measure different. What the reason is I don't know.

Q. Is it within the reach of science to ascertain that? Do you know whether that is a subject of which electrical science has been able to reach any 451 conclusion, or is it an unknown quantity?

A. It is not exactly a matter of electrical science; it is a matter of medical science, and I should say, or I suppose, it all depends upon the conducting fluid of the skin, which varies according to the condition of the person and of the force; that would be my idea of the reason.

Q. You don't speak as a medical man; I mean as an electrician?

452 A. I mean as an electrician. I don't know anything beyond that.

Q. Electrical science has been able to determine the resistance of metals?

A. Perfectly.

Q. And apart from your own experiments, have you ever known whether electrical science has ever been able to solve or reach any solution of the question by which the electrical resistance of a living organism can be tested?

453 A. You get a result every time, but you have no means of knowing whether it is accurate. Nor do I think it is possible to know.

Q. This machine, which Mr. Brown has described: Are you familiar with it; do you know what it is?

A. Which one do you refer to?

Q. The one described by Mr. Brown to be used for the execution of Mr. Kemmler, the one Mr. Brown furnished to the State, the Westinghouse dynamo?

454 A. I am familiar with the Westinghouse dynamo.

Q. And you know what current it can generate?

A. 1,050 volts.

Q. That is the maximum voltage it can generate?

A. I believe that is the maximum.

Q. I read from the book in evidence, which is marked Relator's Exhibit "A," and is the production of Mr. Harold Brown, from page 18 of this book, as follows: "A dynamo capable of generating an electro-motive force of at least 3,000 volts should be employed and the current used with a potential of between 1,000 volts and 1,500 volts, according to the resistance of the criminal." Would the instrument or machine described by him, which he has furnished Warden Durston at Auburn, be capable of generating an electro-motive force equal to what I have read about? 455

A. I understand the machine to be a Westinghouse dynamo, and if so, I say it would not. The maximum capacity of that machine is about 1,050 volts. 456

Q. I think that he described it as one of those machines that you would have for a 650-lamp machine; is that the dynamo that you refer to whose maximum voltage is 1,050 volts?

A. Yes, sir, although the number of lamps makes no difference. If there were 10,000 lamps, you would have the same voltage.

Q. So that the number of lamps is not important?

A. No, sir. 457

Q. And none of these machines are capable of generating an electro-motive force above or greater than 1,050 volts electro-motive force?

A. No, sir. Not as they are sold for electric lighting.

Q. Now, you are familiar with the extent to which the nature of electricity, so far as it is at all understood, has been explored by the electrical profession?

A. I think so; I have always tried to keep myself posted. 458

Q. Now, did you hear Mr. Harold P. Brown's testimony as to the distance to which an electrical spark can be projected into the atmosphere?

A. I heard it.

Q. Did you hear him state that, in his opinion, it was possible to generate a spark and project it 36 inches, or that it had been done?

A. I did.

Q. Is that true? 459

A. It is possible it may have been done. I never have heard of it.

Q. Is there any record of it ever having been done that you are familiar with?

A. I don't recollect, but there may be.

Q. What is the greatest extent, so far as you know, an electrical spark has ever been projected into the atmosphere?

460 A. My impression is it is 16 inches.

Q. Now, is there any way by which the comparative power of two electrical currents can be estimated—the respective distance to which sparks will project into the atmosphere?

A. Yes, sir; that distance furnishes an approximate measurement.

Q. How is it measured, what is the system?

A. It is at least in proportion to the distance, and, according to some authorities, the square of the distance. 461

Q. What is the greatest distance to which a spark of lightning has been projected into the atmosphere, as far as it has been recorded?

A. It is difficult to get at it accurately, but observers who are considered competent authority say that some of the discharges are half a mile in length, and I should say they are right.

Q. Now, if a person receives a charge of lightning 462 in his body, what proportion of the ordinary discharge, would that bear to a stroke you could generate by artificial means?

A. As far as the electro-motive force is concerned, it is infinitely greater than anything we can generate by artificial means; as to the volume of the current, I think it can be equalled; as to the force developed, the energy, the horse-power, I should think it was much greater than anything we could develop artificially.

463 Q. Is there any comparison between the two, can you make any comparison in its effect?

A. No, not the effects which are produced by lightning, such as the blowing up of large trees, blowing them all to pieces; you could not blow a broomstick to pieces by artificial means.

Q. You could not, by any artificial means, shatter a broomstick?

A. I should think probably not.

Q. You don't know of any artificial means that have ever become effective in that direction, of shattering things? 464

A. No, sir.

Q. And you could not knock down Trinity steeple by artificial means?

A. Certainly not.

Q. And it would be equally impossible, I presume, to shatter an ordinary tree?

A. Equally so.

Q. And I will ask you if there could be anything 465 constructed by human means, or any tree that ever grew, that could not be shattered in an instant by a stroke of lightning?

A. Well, a very powerful stroke of lightning will destroy almost anything.

Q. Now, Mr. Pope, would it be possible by artificial means to generate an electric current that would tear your coat off from your back?

A. I think it would be entirely impossible. 466

Q. Or that would completely separate the fibres of your garments and tear them?

A. I don't think it is conceivable at all.

Q. And it has been known, hasn't it, and there are instances on record, of lightning tearing the clothes off from persons?

A. Many instances on record, and I have seen a photograph of clothes and boots that have been torn off a person in that way.

467

Q. Do you know if there is on record any case where the boots and clothes have been torn off a man and his life saved?

A. Yes, sir; this was an instance I just referred to, where the man's clothes were destroyed and the man was knocked senseless, but recovered.

Q. Has it ever been discovered, so far as known, what the effect of an electrical shock was upon the human organism, or has it ever been stated or de-

468 fined, or ascertained, how an electric shock affects the human body?

By the Referee:

Natural or artificial?

A. I think there is very little knowledge in relation to the subject, and very few investigations have been made; almost none. I would like to qualify my 469 last answer by saying that the effects of weak currents have been studied by electricians considerably, but in relation to the effects of powerful currents we know almost nothing.

Q. Can you describe to us, a little more definitely, what you mean by weak and powerful currents?

A. I mean by a weak current a current the power of which or the effects of which can be sustained without much inconvenience, or without much pain.

Q. Can you tell what the effect of electrical shocks 470 on the human body are, where the shock is not fatal?

A. We can tell what the nature of the effects are from personal observation, but in the cases I have read about and the instances which have been related to me by people who have been struck by lightning themselves, they have generally, but not always, been knocked senseless and burned, in some cases the burns running the whole length of the body.

Q, In the case of a burn, or these marks on the 471 body, do they always come, or do they always go, with the contact with the conductor, or do they sometimes rush all over the body in places that are not at all near to the conductor or point of contact with the electrodes?

Objected to by Mr. Quinby, on the ground that the testimony is hearsay, and, therefore, incompetent.

Mr. Cockran:

That is so of all expert testimony in regard to cases recorded. I have not the slightest objection to putting in all the records which Mr. Brown may have collected 472 in the ninety-one cases.

Q. In the case of persons struck by lightning, burns are produced with the contact with what is ordinarily termed a conductor, and the clothes of a person, when saturated with rain, would be a partial conductor, and perhaps sufficient to cause the burning. In the case of burning by currents from dynamo machines, so far as I have ever read or heard, it only takes place at the point of contact with the conductor. 473

Q. You heard Mr. Brown's testimony, yesterday, about the effect of a failure to kill. You were here when he testified?

A. Yes, sir.

Q. Now where an electrode charged with such a current as we have had described touches the human body, what is the effect, if you know, if it does not kill immediately?

A. The effect is to burn the flesh. 474

Q. The electrode itself is what? We have had electrodes mentioned?

A. The electrode is the metallic surface which terminates the metallic conductor.

Q. And the conductor is what we ordinarily call the wire?

A. Yes, sir.

Q. And so in plain English, when the victim of this experiment is placed in a position for the attempted execution, two wires are brought in contact with the body? 475

A. I understand that—

Q. I am speaking now from the description of Mr. Brown?

A. I understand that a moistened body of some sort of conductorial fabric is introduced between the metal electrode and the flesh.

Q. I want to eliminate the technical terms?

476 A. Well, the electrode is the enlarged surface at the end of the wire which is in contact with the thing to be operated upon.

Q. And in other words the wire itself is the conductor?

A. Yes, sir.

Q. And upon attaching the electric current the shock is to be delivered into the body of the victim, and that end is flattened out; I want to know whether that flat substance is the electrode? 477

A. Yes, sir; that metallic substance.

Q. And Mr. Brown testified that at the point where the electrode is to come into contact with the body, a moistened sponge, or something like that, is to be put there. From a scientific point of view, that is the object, or what is its effect; does it in any way lessen or increase it?

A. The object is to lessen the resistance at the point of contact, I suppose.

478 Q. How do you mean lessen the resistance?

A. The liquid with which the material is saturated forms a better connection, a better electrical connection with the skin, than the metal would, and therefore diminishes the resistance for the passage of the current.

Q. It facilitates the passage of the current?

A. Yes, sir.

Q. And we have heard Mr. Brown say if that was kept thoroughly moistened there would be no burning. Is that so? 479

A. There would be less burning, but I am not sure that there would be no burning.

Q. Let us know exactly what the effect would be. I understand from his testimony that there was to be an abundant supply of water, and that this substance was to be moistened—this body—what would be the object of that; to prevent burning?

A. It would be prevented; it would lessen it by decreasing the resistance, heat developing or increasing with the increase of resistance at any point in an electric circuit. If you diminish the resistance by interposing a stratum of conducting material you decrease the production of heat, but you do not prevent it. 480

Q. Would it be possible for the heat to pass through this and reach the skin and burn it, through these substances?

A. I cannot say from actual knowledge.

Q. From what you know of the capacity of heat generated by electrical currents, would there be an absolute burning of the flesh, in case it was not sufficient? 481

A. No, I don't think it would be an absolute protection.

Q. Now this heat, can you give us any idea what that would be by measurement, by Fahrenheit; the heat that would be right there?

A. No, I can give no idea. It might be very great indeed.

Q. Would it be sufficient to convert water into boiling water? 482

A. Yes, sir.

Q. And the application of the water, if the heat, as it would have to continue, as the current would have to be continued, the water would be converted into scalding water?

A. It might be.

Q. Wouldn't it?

A. I think so.

Q. So that the man would be scalded instead of burned? 483

A. Yes, sir; I think so.

Q. That is your judgment as an electrical expert; from what you have seen?

A. It is a very familiar experiment to boil water by an electric current.

Q. Tell us how that could be done?

A. Simply bring two electrodes together in a vessel of water, and passing through them a current you can easily keep the water to a boiling point.

484 Q. How long would it take to heat a pint of water with a machine of this capacity?

A. I should say it could be done within a few seconds.

Q. Now, how long would it take to get a quart of water boiling with a current of this character?

A. Well, this is largely guess work; a quart would take twice as long as a pint.

Q. According to that it would take twice a few seconds, say four or five seconds? 485

A. Something like that.

Q. Have you any idea in your mind, or can you form any idea from Mr. Brown's testimony, what the surface of the electrode would be, or rather what the surface of the moistened substances would be?

A. I don't know whether I have gathered the impression from Mr. Brown's testimony or from what I have read. I suppose it to be two or three inches, possibly, in diameter.

486 Q. Take it three inches in diameter, that would support a sponge of what size?

A. About the same size.

Q. It would be circular in its outline, wouldn't it? What would be the shape of the electrode?

A. It would not matter what the shape was; that would be a matter of convenience. The question is the number of square inches of surface.

Q. You say about how many square inches?

487 A. Say ten.

Q. About how much water would that hold at a time; would that hold a pint of water, do you think?

A. I think hardly; half a pint, I should think.

Q. With an electric current passing through this moistened substance into the body of the subject, how long would it take for the water, or whatever would be in there, to become heated to a boiling point?

A. I should say a very few seconds probably. Of course it would depend on the strength of the current, and would depend upon the resistance of the subject. 488

Q. I understand the theory of this execution, so far as described by Mr. Brown, is to start the circuit through two wires and make the body of the criminal condemned the final part of the circuit, or the connection of the circuit?

A. Yes, sir.

Q. And have the body act as the conductor to permit the circuit to pass through it, and this heat that you have described has to be sufficient to convert cold 489 water into boiling water; of course operating through the moistened substance?

A. It would be developed only at the point of contact of the electrodes, and not within the body, I think.

Q. But on the body?

A. Yes, sir.

Q. On the skin?

A. Yes, sir.

Q. That would be the point of contact? 490

A. Yes, sir.

Q. And then if the current of heat itself did not pass through the water to the body and burn it, in your judgment would the heat pass into the water and make that scalding water, converting it into boiling water?

A. I should expect it would.

Q. And assume that the heat passes, that the moistened surface did not absolutely bar the passage of the 491 heat itself, what effect would that have upon the body itself?

A. I cannot undertake to say what the effect would be.

Q. What would the possible effect be. It would be burned, wouldn't it?

A. It would be burned, of course, and a sufficient current would carbonize a man's body from one end to the other.

492 And when you say that you mean that it would burn it to a crisp?

A. Yes, sir; but ordinarily I should not expect it to do that; that no such effect would take place except at the surface.

Q. What effect would take place at the surface?

A. The burning effect which is noticed in most cases where people come in contact with these wires.

Q. That is, the burning of the flesh away from the bones?

493 A. Yes, sir.

Q. And now, Mr. Pope, this current of 1,050 volts, generated by a Westinghouse dynamo, such as we have had described here, what effect would that have, in your judgment, upon the human body?

A. Ordinarily, it has the effect of burning the flesh if it comes in contact with it; however, that would be modified by the interposition of the moistened substance. I cannot say, in the absence of any experi-

494 mental knowledge, how much, but it would be modified to some extent undoubtedly.

Q. To what extent; to the extent of scalding the flesh?

A. I think that considerable heat would be developed, even with the moistened substance, and probably heat equal to boiling water.

Q. Are you able to state anything, or do you know anything yourself, about the probable effect of a shock

495 of 1,050 volts, such as would be generated by one of these machines on the body; would it be equal to burning and torture, or simply a kind of titillation, as Mr Poste suggests?

A. It would depend entirely upon the susceptibility of the subject and the nature of the contact.

Q. Would an experiment of this character be affected by the atmospheric conditions?

A. Not directly. By which I mean that a person coming in contact with the wires on a damp day would be more liable to be severely injured, or even killed, 496 on account of his making contact with the ground, or a moist floor, or whatever he was standing on. If it was dry, there would be a partial insulation and he would not receive so powerful a stroke; but aside from that the character of the weather would make no difference, and I should think that different people receiving the shock under exactly the same conditions, that one man might be killed and another only slightly injured.

497

Cross-examination by Mr. Quinby:

Q. Were you subpœnaed to come here?

A. Yes, sir.

Q. What is your business?

A. I have been an electrical engineer most of the time for the last eighteen or twenty years, until within five or six years, when I have been acting as a solicitor of patents, and for the last few years as an expert for 498 the Westinghouse Electric Company.

Q. You are connected with the corporation, are you, as an employee, or otherwise?

A. I am regularly employed by the Westinghouse Electric Company.

Q. They manufacture a machine, don't they, for electric lighting purposes?

A. Yes, sir.

Q. Known as the interrupted current? 499

A. Known as the alternating current.

Q. And they object to the use of their machines in the contemplated execution of criminals?

A. I believe they do.

Q. For what reason, do you know?

A. I suppose for the reason the public would naturally suppose that a machine that was used for the express purpose of killing or ending human life would be an unsafe one to put into commercial use.

500 Q. Do you know, of your own knowledge, of the employment of any counsel to prevent the use of that machine for the execution of criminals?

A. I don't know of anything of the kind.

Q. Do you believe, or don't you believe, that death can be produced by the alternating current, properly applied?

A. I think it can.

Q. With safety and without pain?

501 A. I think that it is possible to produce death without pain.

Q. I ask you, if, in your judgment, death can be produced instantaneously and without pain by the alternating current?

A. Yes, sir; I think it is possible, but I do not think it is by any means certain.

Q. You never have experienced, yourself, the effect of the current and have had no friends experience it?

A. I have never experienced it myself, but I have
502 talked with people who have.

Q. How many recorded deaths are there of people that have died, as you understand it, from receiving an electric current, the alternating current?

A. I have no recollection of seeing any account of more than two or three.

Q. Do you keep a record of recorded deaths of people who come in contact with electric wires?

A. No, sir; I never have had any occasion to.

503 Q. The question of the certainty of the execution depends entirely upon the surrounding conditions, doesn't it; whether they receive the entire voltage or not?

A. Partly upon that and partly upon the susceptibility of the subject.

Q. And that can be measured, as I understand your testimony, the resistance?

A. The resistance can be measured, but I do not think that resistance and susceptibility necessarily have any relation to each other.

Q. Do you believe in the Wheatstone bridge as an accurate means of measurement? 504

A. Perfectly.

Q. So that the measurements of an individual can be determined by the Wheatstone bridge?

A. Yes, sir; you always get some kind of a result.

Q. Do you get the measurement of the resistance of the party?

A. Yes, sir; the resistance of the individual, of the contact between the electrodes and the individual. 505

Q. You agree with Mr. Brown, that the resistance decreases after the first application of the current. Have you had any experience at all in that?

A. It decreases with the strength of the current used in the measurement, and it probably decreases by the continual application of the current.

Q. The counsel yesterday went into the examination as to what caused death from electric shock. Do you know?

A. No; I have no knowledge. 506

Q. It is a breaking down of the nerve tissues, as you understand it?

A. I really cannot undertake to say what it is; I do not know.

Q. It causes death?

A. Yes, sir.

Q. You have no doubt about that?

A. I have no doubt that people have been killed by an electric current passing through them. 507

Q. And you have no doubt but that hanging causes death?

A. I have no doubt of it.

Q. Have you ever attended a hanging?

A. No, I have not.

Q. Do you, or do you not, believe that death caused by an electric shock will be painless?

A. It certainly is in some instances.

Q. I ask you the general question, whether or not

508 you believe that death caused by an electric shock will be painless or not?

A. I believe, as a general thing, it is extremely painful.

Q. Do you know the velocity of nerve sensation in the human body?

A. I do not.

Q. Do you know the velocity of the electric shock in the human body?

509 A. I do not.

Q. Do you know whether the nerve sensation is more rapid in the human body than the electric current inducted into the body?

A. I have no doubt that the electric current is infinitely more rapid.

Q. And therefore, if an electric shock which causes a stopping of the pulsation of the heart is more rapid than the nerve sensation, death would be painless?

A. I presume so.

510

By Mr. Poste:

Q. Is the voltage of the Westinghouse dynamo affected at all by the rapidity of the motion under which it is placed?

A. It is; yes, sir.

Q. Isn't it possible to produce a voltage with the Westinghouse dynamo, such as has been described by Mr. Cockran, of 2,000 volts, by increasing the speed of the armature?

511 A. It might be.

Q. Isn't it possible to produce a velocity of 3,000 volts by increasing the speed of the armature?

A. It might be.

Q. And to 4,000.

A. You could increase it to almost any extent if the machine did not go to pieces.

Q. Has the dynamo spoken of an exciter, or is it excited from external forces?

A. It is excited from external forces. 512

Q. And would or would not the voltage of the dynamo be increased by increasing the exciting forces?

A. It would to some extent, but I don't know how much.

Q. Can you give me the percentage?

A. No, sir.

Q. Please state the rule as to the transmission of current through a circuit of varied resistance. Is the current uniform through the various resistances?

A. The current is the same in all parts of the circuit. 513

Q. You testified, as I remember, on your direct examination that the heat developed in an electric current depended on the resistance offered to the current by the conductor.

A. Yes, sir; the heat developed at any point in the circuit is dependent upon the resistance offered at that point.

Q. Take a wire of homogenous texture and run an electric circuit through it; the heat developed by the passage of the circuit is developed uniformly over the entire wire? 514

A. Yes, sir.

Q. Then if you have an electrode placed on the head of a human being and also at his feet, and offering no more resistance than the average resistance of the body, the heat developed through the passage of that current through that body and those electrodes would be uniform throughout the whole extent? 515

A. Yes, sir; I think it would.

Q. Are you acquainted with Jouls's law of heat?

A. Yes, sir. The heat produced at any given point in a circuit is found by multiplying the square of the current into the resistance.

Q. Can you tell me, applying Jouls's law of heat, how long it would take to heat a pint of water with any given current, or any given ampere or voltage?

516 A. It can be computed.

Q. Do you know anything about what has been accomplished by artificially developed electricity in regard to the passing of a spark through plate glass?

A. I know something about it. I have seen a plate of glass, perhaps three or four inches thick, perforated by a spark.

Q. An artificially developed spark?

A. Yes, sir.

517 Q. In regard to lightning, do you mean to say that a thunderbolt is the actual indication of all the current of electricity that passes when a stroke of lightning occurs. Observing the flash of lightning, is that all the current that passes when a thunderbolt is discharged?

A. I suppose that it is, but I do not know.

Q. Is that what the best writers say upon the subject?

A. I don't remember ever having seen that point
518 discussed.

Q. Do you not know, or do you know, that it is the opinion of the authorities upon that subject that the flash of lightning is only the axis and may not be the current of the discharge; that the actual discharge may be disseminated over a vast region?

A. I have seen such a view of the subject discussed somewhere.

Q. Don't the authorities say that if a person actu-
519 ally receives the lightning flash, or lightning, that he not only never sees it, but is instantaneously and painlessly killed?

A. That is undoubtedly true of people who are killed by lightning.

Q. State whether or not the passage of a current of electricity, like a lightning flash, or a current, which takes place at a lightning flash, does not produce a contrary current, or series of currents, from the earth to the clouds?

A. Probably it does. 520

Q. And state whether or not it is not the opinion of the authorities upon this subject that persons who have received shocks of electricity at the time of the stroke of lightning, from which they have recovered, have received only the result of an induced current, and not the lightning stroke itself?

A. That is undoubtedly true in some cases, but in some cases I don't see how it could well be.

Q. These inductive results of a stroke of lightning; 521 state whether or not they are spread over a large area proportioned to the strength of the electrical discharge?

A. Probably they are.

Q. Did you testify, in answer to Mr. Cockran's question, as to the energy of a thunderbolt?

A. I said that, if I recollect right, that the potential of the discharge was infinitely greater than anything that could be produced artificially, but that the quantity was very likely no greater than 522 could be produced by artificial means, but we do not know, with any definiteness, what the quantity is.

Q. Haven't there been estimates of a lightning stroke a mile or a mile and a half long, as to the voltage?

A. An approximate can be made as to the voltage.

Q. And the difficulty which presents itself to your mind is the ascertaining of the energy?

A. Yes, sir. 523

Q. You say that an arc may be formed under water, an electric arc?

A. Yes, sir.

Q. And the possibility of forming an electric arc depends upon the character of the conductors?

A. Yes, sir.

Q. And, of course, if the conductors present an imperfect contact no arc is formed under water, or anywhere else?

524 A. No arc is formed, and an arc is only formed where there is resistance by separating the conductors, or interposing a poor conductor between them.

Q. What was your testimony in regard to the length of the space traversed by the electric spark, artificially produced, within your observation?

A. I said my impression was it was 16 inches; that was the longest I had seen recorded, but I do not wish to state that with great positiveness.

Q. Will you state that the text-writers, who are the 525 authorities upon electrical matters, do not state the records of an electric spark artificially produced made to travel a distance of 31 inches?

A. I do not doubt it in the least.

Q. Or 36 inches?

A. Possibly 36 inches.

Q. Of course, always in the production of heat radiation of heat takes place?

A. More or less, certainly.

526 Q. And that is true in regard to the production of heat by the passage of an electrical current against a resistance. Can you tell me personally what percentage of heat is radiated under free conditions in the open air; from water, we will say?

A. I do not think that question admits of a definite answer.

Q. Do you swear that it don't?

A. I won't swear it don't; I don't see how it can.

Q. In other words, you are not aware of ascertain-527 ing it at the present time; you are not acquainted with the methods of ascertaining it?

A. I don't see how it can be ascertained.

Q. Would you say whether or not, in your opinion, it would be possible to make or construct electrodes to be applied to the head of a person who was to be executed by electricity that would produce a close contact with the head, so as to be perfectly homeogeneous with the average resistance of the body or individual?

A. It might be possible, I should think. 528

Q. You say that you have made your experiments upon your own person with reference to ascertaining what your own resistance was, yesterday?

A. To-day.

Q. You began with one volt and increased the voltage to 100?

A. Yes, sir.

Q. How long a time did you leave the contact at all during these experiments?

A. In one instance only— 529

Q. Do you know that the time was kept in making these experiments? How long a time was occupied in making the whole series?

A. Probably about an hour.

Q. The first figure you gave was 6,300 ohms. How long a time did you spend in the circuit?

A. The measurements were each of them continued for about ten seconds, with the exception of one, which was prolonged for two or three minutes. 530

Q. Which one was that?

A. The fourth.

Q. Are the figures which you have given for the fourth the application of 100 volts, 3,500 ohms; were those the figures at the final end of the experiment or at the outset?

A. Yes, sir.

Q. What did you observe as the result at the close, just before you left the circuit? 531

A. Very little change, so little that we could not be certain it was not due to the drying out of the liquid tn contact with the electrodes. It was not enough to indicate anything definitely. The measurement remained there steady.

Q. Did you determine the electro-motive force?

A. Yes, sir.

Q. Employed in these various experiments?

A. Yes, sir.

532 Q. How?

A. By the number of cells used.

Q. What kind of cells did you use?

A. Chloride of silver cells.

Q. Whose battery is it technically known as?

A. Delaruse's.

Q. Do you know anything about the electro-motive force of one cell of that battery?

A. Yes, sir; I have used it myself.

533 Q. Do you know the electro-motive force of one of those cells; did you apply or use the volt meter in connection with these experiments?

A. No, sir.

Q. Then how do you know that one of these cells produces an electro-motive force of one volt?

A. I know it the same as I know that an inch measures an inch long.

Q. Did you ever compare a cell of this kind with a Daniel cell?

534 A. Yes, sir.

Q. What is the volt capacity of one Daniel cell?

A. It is 1 7-100 of a volt.

Q. You swear to that positively?

A. There is a slight variation in Daniel's cells, but that is the average.

Q. Do you know anything at all about how long a time these cells had been in operation that you used?

A. I do not.

535 Q. And you never saw them before?

A. No, sir.

Q. And you don't know when they were originally charged?

A. No, sir.

Re-direct examination by Mr. Cockran:

Q. In your experiments with this Wheatstone bridge, did you use the usual precautions or means that are adopted in testing the measurement of resistance of metallic substances, for which it was originally designed? 536

A. Yes, sir; every precaution.

Q. Now, I understand you testified on your direct examination that no matter how many volts you sent through the current the measurement would be the same in case of metals and wires?

A. Yes, sir.

Q. And in the case of human organism, it is varied as you found? 537

A. Yes, sir.

Q. What does that convey to you, as to the reliability of the Wheatstone bridge as a means of ascertaining the resistance of a living organism?

A. It does not impeach the accuracy of it, but it shows there is no testing the resistance of a human body; it varies.

Q. That is to say that the resistance of the human body varies? 538

A. Yes, sir.

Q. Whereas, the resistance of a piece of metal or wire is constantly the same?

A. Yes, sir; the only variation of that is due to the temperature, which is taken into account and allowed for.

Q. As a matter of fact, the Wheatstone bridge; in your judgment is it at all reliable or capable of ascertaining the resistance of the human body; I mean with accuracy? 539

A. It is capable of measuring the resistance, whatever it may be, which is presented to it, at any given time by any one, but the human body varies from time to time.

Q. So that the trouble in ascertaining the resistance is not with the bridge, but with the body?

A. Certainly.

Q. And it is not that the bridge is inaccurate, but the body varies?

540 A. Yes, sir.

Q. And a measurement made one or two minutes ago would not hold good now?

A. Very likely not.

Q. In answer to Mr. Poste, you have testified as to the observations that have been made of natural lightning, and I understand you to say that in every instance persons who have received a shock and probably recovered, had received only the reflex or induced action and not the current itself? 541

A. Yes, sir.

Q. Does that hold good in all instances?

A. No, sir.

Q. Take the case where the man's clothes and shoes were torn off him. Would you consider that was an induced or a direct current?

A. I couldn't give an opinion without knowing all the circumstances and the location of the man, his relation with the surrounding objects, but I should suppose it was done by a direct discharge. 542

Q. Whether it was an induced current or a direct thunderbolt. Was it, or was it not, from the effect produced, more or less powerful than any electrical current that could be generated by artificial means?

A. I should say, yes.

Q. Much more powerful?

A. Yes, sir; much more powerful.

Q. In answer to Mr. Poste, you have also testified that in the case of a copper wire, or any other conductor of uniform structure, that the heat would be diffused equally throughout it in the case of an electrical current passing through it? 543

A. Yes, sir.

Q. In case a human organism was interposed between the two ends of the conductors, that would be a new substance, different from the wire, or whatever would be the component parts of the wire?

A. Yes, sir.

Q. And at that point where the foreign substance 544 was interposed, if the resistance of that body was greater than the resistance of the wire, what would be the effect or the heat of the wire at that point?

A. The heat developed in that portion of the circuit formed by the body would be in proportion to its resistance.

Q. So if the resistance was three times as great the heat would be three times as great?

A. Yes, sir.

Q. And if the resistance was fifty times as great the 545 heat would be fifty times as great?

A. Yes, sir.

Q. So that would be the point where the burning would occur, where the wire was broken or taken through the body, where the wire conductor entered the human organism?

A. At that point the resistance would be the greatest at any point of the circuit, because the current in passing from the wire into the body, after en- 546 tering the body, spreads out over the whole material of it, and therefore it becomes more diffused and the heating effect less, so that the greatest heat is produced at the surface.

Q. If the surface was burned away would the heat continue on down as a new surface was presented?

A. It would, if the electrode followed it up.

Q. Suppose the electrode remained where it was and suppose the man to be tied as he would be in this 547 chair, and at the point where the electrode came in contact with his body the flesh began to burn, would the burning stop after a certain portion had been burned?

A. That would depend upon whether the electrode continued in contact.

Q. If it advanced and kept pressing on the surface?

A. I suppose it would not; the current would be interrupted.

548 Q. Then the burning would stop?

A. Yes, sir.

Q. In order to kill a man they would have to press the electrode up alongside of him?

A. Yes, sir; they would have to press it forward.

Q. In order to continue the electrical influence?

A. Yes, sir.

Q. Otherwise there would be an interrupted flow?

A. Yes, sir.

549 Q. And if, under the statute, the current was kept up until the victim was dead, in order to do that they would have to advance that to some other point?

A. Yes, sir.

Q. You have been asked as to the capacity of the Westinghouse dynamo to increase its voltage and you said it could be increased to 4,000 or any other number of volts that might be imagined, until the machine went to pieces?

A. Yes, sir.

550 Q. Explain what you mean by that; what would send the machine to pieces?

A. The centrifugal force. The machine is made to run at a certain speed, and it is not safe to run it at a much higher speed than that, otherwise the parts may give way.

Q. So when you say 1,050 volts is the power of the machine you mean the power it can safely generate?

A. Yes, sir; that is the highest power to be used in commercial work. 551

Q. Is that the highest power to which it can be safely carried?

A. Yes, sir.

Q. Am I right in assuming that these machines are in that respect analogous to a steam engine, that there is a certain pressure to which a steam engine may be carried?

A. It is precisely the same thing.

Q. And when you speak of its power you mean the power it can be safely used at?

A. Yes, sir; the power intended to be used for commercial work. 552

Q. You have been asked about the capacity of the nerves of the body to transmit pain. You don't assume to know anything about that?

A. Not at all.

Q. And you don't assume to know how electricity would kill?

A. Not at all. I know it will kill under some conditions.

553

Q. And you know it has killed?

A. Yes, sir.

Q. And then again you know it has not?

A. Yes, sir.

Q. Is that your view of electrical currents upon the human body, that it may and it may not kill?

A. Yes, sir; it depends upon the susceptibility of the individual.

Q. Has it ever been recorded in any work of science, or is there any means by which it can be definitely ascertained, what the voltage would be necessary to kill a human being? 554

A. Nothing is known about it, so far as I know, but what has been brought up by Mr. Brown's experiments.

By the Referee:

Q. Don't they know, in a case where an operative or others have come in contact with electric wires and died instantaneously, what capacity the machines were running at and what amount of electrical energy was being excited? 555

A. It might have been easily ascertained, and in some cases has been.

Q. They knew what pressure the machines were running at?

A. Yes, sir, over the system. The incandescent lighting machines run at a constant voltage; it is always the same.

556 By Counsel, resuming:

Q. You say that it has been known where certain men have been killed with contact with wires that sustained a certain voltage?

A. Yes, sir.

Q. And you have known instances where men have been severely burned and not killed by the same contact?

A. Yes, sir.

557 Q. And upon that you base your judgment that it is impossible to tell what voltage will kill a human being?

A. Yes, sir.

Q. In cases where men have been killed, have there been, to your knowledge, contributing causes in some instances?

A. There have been in some.

Q. Or have they been in some such position that the shock was much more deadly from the contributing causes, or has it just been the effect, which nobody 558 can understand, where certain men have been killed and others have escaped?

A. There is little really known about it, except the position in which some of these people have been killed.

Q. Have you ever seen any person immediately after receiving one of these shocks that were not fatal?

A. I never have.

559 Q. You simply know that from general reading?

A. Yes, sir. And I have talked with two or three different people who have sustained these shocks, as a matter of curiosity, to find out what the sensations were. That is all I know about it.

By the Referee:

Q. Speaking about this man that was exposed to the thunderbolt which tore his clothes and boots off, was it not possible that the clothes and boots, being wet, 560 that they afforded a better conductor than the body itself, and, consequently, the force passed off through the clothes instead of into the body, into the ground?

A. That was possible.

Q. And if his clothes were dry, a large portion of the shock would have passed through the body instead of passing through the clothing?

A. It probably passed along the surface of the body, I think. Usually there is a burning over the surface of the body. 561

By Mr. Cockran:

Q. As to the relative susceptibility of animals to electric shock, have you ever had occasion to inquire into that?

A. No, sir.

Q. You have acquired some knowledge on that subject?

A. I know a little about it. 562

Q. And you have heard frequently of vessels being struck by lightning at sea?

A. Yes, sir.

Q. And have you ever known of instances where a number of persons were killed, or was there ever more than one or two at the outside, even when there was a large crew on the deck?

A. Usually only one or two are killed when lightning strikes in a crowd. 563

Q. Take the case of a flock of sheep in a field. What is the effect of a thunderbolt where it strikes in a flock of say 150 sheep?

A. It seems to be more destructive among sheep.

Q. Is that equally true of cows and calves?

A. I don't recollect about cows and calves.

Q. Don't you know that in the case where a flock of sheep are grazing in a field, in case of a lightning storm that several deaths will be found in the morning?

564 A. I have heard of such cases among sheep; I don't recollect how it was in respect to cattle. I have heard of cattle being killed, but no great number at a time; but I am not very clear about that.

Q. Suppose a number of men gathered together on the deck of a ship or vessel, having less opportunity of spreading than if you take a field: would not, in your judgment, the effect or capacity of lightning for destroying life among a crowd on a vessel be more than if it descended into a field where men might 565 scatter?

A. I should think so.

Q. Now, all you have heard or seen of electrical phenomena, isn't it a fact that, as a general thing, lightning is less fatal to man than it is to the inferior animals?

A. I think there is very little doubt about that.

Q. Men are less susceptible. And from that how much do you think any person can determine the effect on a human being from experiments on the inferior animals? 566

A. To tell the truth, I think you can determine very little about it.

Q. And you would not regard it in any sense as a demonstration of electrical phenomena; as an electrician?

A. No, I don't think it is.

By Mr. Poste:

567 Q. What do you mean by the susceptibility of the subject?

A. I mean the effect which is produced on the organism by electrical current.

Q. Has it anything to do with the resistance?

A. It may have, but I don't think it has.

Q. Do you know the highest voltage of any dynamos used in the United States?

A. From 3,000 to 4,000 volts.

Q. Where are there any of 3,000 to 4,000 volts? 568

A. There were some a few years ago in Richmond, Va., the Brush arc-light circuit of sixty lights, which were, I think, some twelve miles in length, and which were somewhere between 3,000 and 4,000 volts.

Q. Is it there now, do you know?

A. So far as I know.

Q. Do you know of any others?

A. No, I cannot say I do.

Q. Do you know any others in the country that have an electro-motive power of more than 2,000 volts? 569

A. No, I cannot say I do of my own knowledge.

Q. Have you any knowledge on the subject?

A. Not specifically.

Q. If there had been anywhere in the country a dynamo employed for commercial uses, and having an electro-motive force of more than 2,000 volts, would you be apt to know it?

A. I should have no particular occasion to know it. If I did, I could have found it out without any 570 difficulty.

Q. You speak of instances which have happened, with accidental contact with electrical currents, and you used the term "the same contact." Now, from your information of the character of the contacts taking place in these accidents, when they prove fatal, or otherwise, is your information sufficiently definite so you could describe the contact at all?

A. No, I don't think that it is.

Q. And various elements affect the question as to 571 the degree of electrical energy passing through persons who come in contact with electrical conductors accidentally?

A. Yes, sir.

Q. What are those elements?

A. The potential of the circuit is one element, the resistance of the person through whom the current passes, and usually the conductor of which he forms a part, is the other element.

572 Q. Is there no other?

A. The length of time he is in contact with it.

Q. Has not the grounding of the circuit something to do with it?

A. That is part of the resistance.

Q. That must occur anyway in order to be productive of an electrical discharge?

A. Yes, sir; the circuit must be grounded at some point.

573 Q. Then the distance from the point of the person would very largely affect the degree of electrical energy he received?

A. Yes, sir; the effect of the resistance of the path of which he forms a part, and in that way, of course it would affect the result.

Q. Do you mean to say that a dynamo of the character that has been described here, that has been furnished the State, cannot be run with safety at a voltage of 2,000?

574 A. I should be very doubtful whether it could.

Q. Do you swear that it could not?

A. No, sir; I do not.

By Mr. Cockran:

Q. When you say you would not swear positively it can be run with safety, do you mean to say, in your judgment, it would not be safe?

A. I don't think it would be safe.

575 Q. Do you know whether an experiment has ever been made or tried of running a dynamo of that character at a voltage of 2,000 volts?

A. To produce a potential of 1,000 volts it probably would be necessary to run the machine at something like 800 revolutions a minute, and if you wished to raise it to 2,000 you have at least got to double that speed, which is a very unsafe thing to do, to run a machine at double the speed it is intended to run.

Q. Would it be safe, in your judgment, to run it at 2,000 volts?

A. I don't think it would. 576.

Q. Would it be safe to run it at anything higher than the voltage at which it is intended to run, of 1,050 volts, its fixed capacity, in your judgment?

A. It would probably be safe to increase that speed some, because there is always a margin of safety allowed.

Q. But in using the machine for commercial purposes there is a margin left for safety, analagous to a steam engine?

A. Yes, sir. 577.

Q. And the amount of pressure that it is allowed to bear is not what it could bear?

A. Yes, sir; you can increase it until it blows up and the dynamo is the same.

Q. You say that you cannot tell the conditions under which these shocks were received from which men recovered?

A. No.

Q. You do know that the voltage is uniform? 578.

A. Yes, sir.

Q. And you do know that those who received it recovered; that is, those who received substantially the same voltage; while others, who received the same shock, died?

A. The difference is in the quantity of current that passes through them, not at all the voltage at which the current was administered.

Q. The voltage was the same in each instance? 579

A. Yes, sir; the same machine, or the same class.

Q. And what would you say it depended upon?

A. On the resistance of the circuit of which the man formed a part.

Q. That is the net resistance?

A. Yes, sir.

Q. He himself is an important element in it?

A. Not necessarily, but he might be and might not be.

580 Q. That is to say that in one condition a man would receive all the shock, owing to some contributing causes, and it would be possible for another man differently situated to receive the same shock and escape?

A. One man might be standing on a good conductor and another on a poor conductor, and the resistance of the same man who stood on the good conductor would form a part of the conducting circuit.

581 Q. Does this current, in your view; it does not depend alone upon the voltage of the machine, but also upon the contributing causes?

A. Yes, sir.

Q. Mr. Poste has asked you what you mean by susceptibility to electricity, if that meant resistance, and I understood you to say it didn't?

A. Not necessarily.

Q. Can any one describe what susceptibility to electricity is, more than by the effect?

582 A. No; it might be determined by experiment whether there is any relation between susceptibility and resistance. If there is any such relation existing, or found to exist, then it would be found the subject having the highest resistance would have the most susceptibility.

Q. And people with the least resistance will have the least susceptibility?

A. That is what I should expect if there is any relation, which I do not think there is.

583 Q. Speaking of the susceptibility to electricity, you simply speak of something which is evidenced by results, but which you cannot analyse or define. Is that not so?

A. No, I do not think you can precisely.

Q. You can give an instance of it; you can illustrate it but you cannot define it, is not that right?

A. Yes, sir.

Q. And in a thunder-storm some persons are much more affected by the electrical condition of the atmosphere than others? 584

A. Yes, sir; as I would expect that I would be much more susceptible to heat than Mr. Poste would.

By Mr. Poste:

Q. Did I understand you accurately when I understood you to say that you should consider that the higher the resistance of a person the greater his susceptibility to electrical effect? 585

A. That is what I said; I don't state that as a fact, but as a conjecture.

Q. Is there any—are you acquainted with the dynamos in use for commercial purposes in the City of New York?

A. Pretty well.

Q. What is the highest power or voltage of a dynamo used in this city for the last three or four years?

A. Between 2,000 and 3,000 volts, I suppose.

Q. You now refer to the extreme capacity, or the average running rate, of the dynamo? 586

A. I refer to the running rate.

Q. Where are those dynamos?

A. I cannot state of my own knowledge; I think the Brush Electric Lighting Station have some of 2,000 volts.

Q. Is that the alternating current?

A. No, sir; the direct current.

Q. What is the highest voltage of any dynamo of the alternating current type in New York? 587

A. I don't know of any above 1,050 volts.

Q. I suppose, with a 1,050-volt dynamo you run it higher than 1,050 volts actually?

A. I think not.

Q. How do you ascertain the electrical energy of an electric current?

A. It is found by multiplying together the volts and amperes, multiplying the potential by the strength of the current.

588 Q. Suppose a man were killed by a current produced by one of the dynamos of the Westinghouse Company of the alternating current, and it was material in the case to ascertain the amount of electrical energy exerted upon that person, how would you ascertain it approximately?

A. I don't know how it could be obtained in a case of that kind.

Q. Suppose you knew the resistance of the current?

589 A. If we knew the resistance of the current—

Q. I mean the electrical energy at the point of the accidental contact, how would you ascertain it, and you knew the electro-motive force, I mean?

A. There is no difficulty in ascertaining the electromotive force. The difficulty is in ascertaining the volume of current that passes through the man.

Q. How would you ascertain the energy?

A. I shall have to answer you that I do not know how it could be ascertained.

590 Q. Do you mean to say that your company is not aware and can prove at any time the amount of electrical energy it is sending through the wires in the streets of New York?

A. We can ascertain what they are sending through the wires, but not through any particular person touching the wire.

Q. How do you ascertain what goes over your wires?

591 A. By the use of a specially constructed ampere meter and volt meter.

Q. In other words, you measure the number of amperes passing over your wires?

A. Yes, sir.

Q. And the number of volts produced by your machine?

A. Yes, sir.

Q. And you multiply that together?

A. Yes, sir.

Q. How do you ascertain that? What kind of a meter do you use? 592

A. I don't know what kind of a one is used.

Q. You have one?

A. There has been a great deal of difficulty in devising an instrument which would do that work properly, but I understand it has been done.

By Mr. Cockran:

Q. Is there any difference, in your judgment, between the deadly effects of an alternating current and a continuous current; dangerous effects? 593

A. A continuous current is probably less dangerous than an intermittent or alternating current.

Q. Is anything known definitely on that subject?

A. Not that I know of.

Q. What is the alternating current? I ask you this with reference to the language of the statute. I don't really understand it myself?

A. The alternating current is one that the direction of it is reversed at every pulsation. 594

Q. But is it continuous?

A. It is a continuous current; that is, a continuous current is perfectly regular, smooth and unbroken; an intermittent current is a series of pulsations, and may be either alternating or non-alternating; they may all be in the same direction, or every other one in the same direction.

Q. The current then is cut off for an instant in going one way; for an instant, and stops and goes the other way? 595

A. It may be said that at the instant of change from one direction to the other there is an infinitesimally small time in which there is no current, and in that way it would be an interrupted current.

Q. I read from Chapter 289 of the Laws of 1888: Is the alternating current such a current as is described in the following language: "Punishment of

596 death must in every case be inflicted by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death, and the application of such current must be continued until such convict is dead." Is it a continuous current within the meaning of that chapter?

A. I don't understand that there is any description of a current there.

Q. Could you, as an expert, define or describe, now, 597 any current of electricity of sufficient intensity to cause death? Do you know that it can be generated by artificial means, a current sufficient to cause death in every person?

A. No, I do not think I can say I know of any current that would absolutely and certainly cause death in every instance.

Mr. Cockran:

598 I understand that the Attorney-General and Mr. Quinby both desire to make an inspection of Mr. Edison's laboratory, and that Mr. Hatch desires to accompany them. I will be unable to do so personally.

By the Referee:

Will there be any objection on the part of counsel to the Referee going with them?

By Mr. Cockran:

599 No, the counsel desires the Referee to accompany them, and on the part of the Relator here I desire to say that any plans or anything else that will be useful in the enlightening of the Court in the description of the machinery we will be very glad to incorporate in the evidence.

The proceedings then adjourned to Monday, July 15th, 1889, at 10.30 o'clock.

600

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER, AGAINST CHARLES F. DURSTON, AS WARDEN OF THE STATE PRISON AT AUBURN, N. Y.	Before C. Edwin Day, Esq., County Judge, Cayuga Co.

Hearing continued this 15th day of July, 1889, at the office of Messrs. Cockran & Clark, before Tracy C. Becker, Esq., Referee. 601

STIPULATION: It is stipulated that, during the absence of Mr. Macnoe, the stenographer heretofore employed, the evidence shall be taken by Mr. Thomas S. Lewis, of New York City, until the further order of the Referee.

It is further stipulated that the presence of Mr. Hale, one of the Commissioners appointed to investigate and report to the Legislature with regard to the methods 602 of execution of criminals, which has heretofore been required, for to-day shall be postponed, it appearing by telegraph from Mr. Elbridge T. Gerry, Chairman of said Commission, that he could be here on Wednesday, which would be July 17th, and that Mr. Gerry be notified by the Referee by telegram to be here on Wednesday, the 17th, at 10.30 A. M., at the request of counsel for all parties interested.

DANIEL L. GIBBENS, called as a witness on behalf 603 of the relator, being duly sworn by the Referee, testified as follows:

Direct Examination by Mr. Cockran:

Q. Mr. Gibbens, you are, I believe, a member of the Board of Electrical Control of the City of New York?

604 A. Yes, sir.

Q. And you have been a member of that for some four or five years, have you not?

A. Since it was organized.

Q. You remember the present Board and the old Board, and you were a member of the old Board?

A. I was; yes, sir.

Q. Mr. Gibbens, in the course of your official duties have you become familiar with the manifestations of electrical currents? 605

A. To a certain extent I am somewhat acquainted with the theory of electrical currents, with the practice of conducting them through cities, and have taken a general interest in electrical subjects, and have made it a study.

Q. Can you say whether, in your judgment, it is possible to generate an electrical current that will be sure to kill?

A. I may say that, in my judgment, it is entirely 606 uncertain, in the first place, whether an electrical current can be generated that will kill every animal.

Q. I mean a "human" being?

A. Every human being, and, secondly, whether any current which might kill any animal or human being would kill any other animal or any other human being.

Q. In other words, I suppose you mean the susceptibility of different persons — different organisms, 607 human organisms—to electrical influences is so great that it is impossible to say what current would kill in all persons?

A. In my opinion it is utterly impossible.

Q. Mr. Gibbens, were you present at any of the experiments that were conducted by Mr. Harold P. Brown?

A. I was; yes, sir.

Q. What did those experiments consist of?

A. Those experiments consisted of applying to living animals—dogs—electrical currents of different natures and of different electrical motive force. 608

Q. Did you observe the effect of those currents upon dogs that were not killed immediately—pardon me, I will ask you this: Did all the dogs immediately die from the effect of the current?

A. No, sir.

Q. Did you observe the effect of the current upon those dogs that were not immediately killed?

A. Yes, sir.

Q. Will you describe it, please? 609

A. The dogs appeared to be suffering horrible agony. It was one of the most frightful sights that I have ever seen. They gave vent to their agony in howls, piteous wails and cries, and after the current was taken away from them they fell exhausted at the bottom of the cage.

Q. Did you observe how these electrical experiments were conducted; how the electrical currents were passed through the bodies of the dogs? 610

A. In a general way. The electrical conductors were fastened to different parts of the dogs and so on, by the application of sponges, wet cloths or something of that sort. In a general way I took notice of what was done.

Q. The two ends of the wires were attached to their bodies some way or other, and the effect was such as you have described?

A. Yes, sir.

611

Cross-examination by Mr. Poste:

Q. Mr. Gibbens, where was this demonstration?

A. This took place at Professor Chandler's room in the School of Mines in this city.

Q. How many animals did you see operated upon?

A. Three or four. I could not say; I don't remember exactly how many.

Q. Do you remember the date of those experiments?

612 A. No, sir.

Q. Do you remember who was present?

A. My colleague, Mr. Moss, was present and Mr. Brown—Mr. Harold P. Brown—conducted the experiments; he was assisted by Dr. Chandler's assistant. If Mr. Brown can remember his name it will refresh my memory. There were a great many persons present, newspaper reporters and electricians. Franklin Pope was present, Professor Von der Weyde, and others whom I don't remember. 613

Q. What animals were operated upon?

A. Dogs.

Q. Were they all dogs?

A. All the animals that I saw operated on were dogs.

Q. Was this the continuous or the alternating current that was used on these dogs?

A. I was told when the manifestations were made; we were told when it was the alternating and when it

614 was the continuous.

Q. The experiments upon these animals were in a series, were they not?

A. The experiments followed each other.

Q. One dog would be subjected to various degrees of electro-motive force?

A. That is what we were told; yes, sir.

Q. Did you not understand at the time that the series of experiments on one dog, for instance, was for

615 the purpose of determining the amount of electro-motive force—the electrical energy—that was required to kill a dog?

A. I understood that the purpose of those experiments was to show—

Q. (Interrupting.) Answer my question. If I don't give the correct theory, I will give you another. Answer yes or no?

A. I cannot say that was the purpose of the experiments.

Q. Did you watch the meters at all? 616

A. No, sir.

Q. Well, are you enabled to say at this distance of time that any dog that was operated upon on that occasion with an alternating current gave any indications of pain? Are you able to testify positively that that was the fact.

A. I am.

Q. Do you remember the amount of voltage that was used on a dog, with an alternating current, in which he gave indications of pain? 617

A. No, sir; I do not.

Q. Do you remember whether the same dog was afterwards killed by applications of the same series of experiments?

A. I cannot say as to that; I do not recollect.

Q. Can you define in any way to us the instance in which a dog was subjected to the alternating current, and gave indications of pain, and was not killed? Can you describe the experiment in any way, so that it can 618
be identified?

A. My recollection is that the alternating current was applied to a certain dog, and that he gave the expression of pain that I have just stated in answer to Mr. Cochran's question.

Q. That is, as to your recollection?

A. Yes.

Q. That is all you can say in regard to it? You cannot say anything further to identify the dog? 619

A. No, sir; I am not familiar with the names of the dogs.

Q. I mean the scientific data. You have stated that you had electrical information, and I supposed you could identify the experiments in a scientific way. It seems that you were merely a casual observer. Are you sure that you saw more than one dog operated on on that occasion?

A. Yes, sir.

620 Q. You swear positively that more than one dog was operated on on that occasion?

A. Yes, sir.

Q. Will you swear positively how many?

A. No, sir.

Q. Did you see any other animals operated on on that occasion?

A. Only dogs.

Q. And you are not certain how many? You don't know the amount of voltage that was applied?

621 A. No, sir.

Q. You don't know the number of amperes?

A. No, sir; I don't think anybody knew.

Mr Poste:

I move that the latter part of that answer be stricken out.

Q. You don't know the number of amperes that were used on that occasion?

622 A. No, sir.

Q. You don't know the number of revolutions of the armature?

A. No, sir.

Q. Do you remember how many experiments were resorted to upon any one dog?

A. No, sir.

Q. Can you testify whether or not the same dog of any of these three or four was operated upon more than once?

623 A. Yes, sir.

Q. Can you testify whether or not all the dogs upon whom the alternating current was used were not killed?

A. I cannot testify as to that, sir.

Q. Did you not understand that in the series of experiments upon one animal there was from one experiment to another an increase of voltage?

A. I was not told so.

Re-direct examination by Mr. Cockran: 624

Q. Mr. Gibbens, in answer to the question as to whether you know the number of amperes that were used, you said that you did not know, and that you did not think anybody could know. That latter part of your answer was stricken out by the Attorney-General. Now, I ask you the question: Do you think anybody could know the number of amperes, or that anybody did know?

A. No, sir. 625

Q. Why do you say so?

A. Because there was no mode of measuring the amperes, except by calculation.

Q. You did not see any calculations carried on, did you?

A. No, sir.

Q. Now, the Attorney-General also said that you were a "mere casual observer"?

A. The exhibition was given for the benefit of the official body to which I belonged? 626

Q. It was conducted for your benefit?

A. Yes, sir.

Q. Conducted before you?

A. Conducted before the Board to which I belonged.

Q. So that, whatever exhibition was given there was expressly for your benefit?

A. Yes, sir. 627

Q. You have said that Mr. Moss was present?

A. Yes, sir.

Q. Moss was a member of the Board, was he not?

A. Yes, sir.

Q. Did he remain?

A. My impression is that he left; that he was unable to be comfortable during the time that those dogs were so uncomfortable.

628 *Re-cross-examination* by Mr. Poste:

Q. Have you ever observed any deaths of individuals from electrical currents?

A. No, sir.

Q. Have you ever been cognizant of the facts attending such deaths?

A. I have had brought to my notice statistics of deaths alleged to have occurred from currents of electricity, and have been a witness in a case before a coroner's jury where a death was said to have occurred from electricity. 629

Q. What case was that?

A. In the case of Murray, the line-man.

Q. How long ago?

A. About two years ago.

Q, Where did the death occur?

A. In New York City.

Q. Do you remember the locality in the city?

A. On Broadway.

630

Q. Do you remember the man's name?

A. Thomas, I think his name was.

Q. Did you investigate the facts relating to that death?

A. No, sir; I was a witness as to the rules and regulations, and the restriction of the Board of Electrical Control upon the use of high-tension currents in the City of New York; in that capacity I was a witness.

631 Q. During your incumbency in office, have you ever had occasion, as a public officer, to investigate any other death alleged to have occurred from electrical currents?

A. No, I cannot say that I have investigated any.

Q. As a public officer, has your attention been called to any other death?

A. Yes, sir.

Q. What other death?

A. The death of Anton Streiffer, a peddler who was said to have been killed by an electrical current? 632

Q. Where did that death occur?

A. In New York City. I don't recollect the street where it occurred.

Q. Any other case of death that you have investigated or been called upon to make inquiry concerning?

A. Yes, sir.

Q. What are they?

A. The case of a man who was killed, or said to have been killed, by an electrical current in the Bowery. 633

Q. Do you remember his name?

A. I don't recollect his name.

Q. How long ago was that?

A. That was about eighteen months ago.

Q. Taking the last case, do you remember what kind of a wire was said to have caused his death; that is, the wire of what company?

A. The wire of the United States Illuminating Company. 634

Q. How was it in the case of Streiffer; the wire of what company was said to have caused his death?

A. The United States Illuminating Company.

Q. And in the case of Murray?

A. The wire of the Brush Company.

Q. Those companies use the alternating current, do they not?

A. No, sir.

Q. What current do they use? 635

A. They use the continuous current; that is to say, they used it entirely at that time over those wires.

Q. Then those deaths were caused by the continuous current?

A. They were alleged to have occurred by the continuous current.

Q. And did you testify at those times that those companies were using the continuous current?

A. Yes, sir.

636 Q. How many different kinds of currents do you understand are used by the electric lighting companies?

A. The great division of currents commercially used is: continuous and alternating.

Q. Is there still a third?

A. I think they can all be classed under those two heads.

Q. And when a pulsating current is spoken of you think it might be relegated to one of these divisions? 637

A. Yes, and other currents that are spoken of.

Q. Do you remember of any other case of death that you have had your attention called to as an officer?

A. No, sir.

Q. Besides those three?

A. No, sir.

Q. What regulations have been imposed upon the electrical companies by the Board of Electrical Control with reference to the conducting and placing of 638 the same?

A. The regulations are in the nature of requirements for insulation. The theory is that the electricity which is passed over a conductor is very much like water which is carried under pressure through a pipe. The insulation, whether it be air or rubber, or whatever it is, is the outside of the pipe, and the electricity is kept on the conductor by means of these insulations. Now the Board of Electrical Control has 639 passed certain rules and regulations requiring insulation in proportion to the amount of current to be used.

Q. And, of course, the policy of the law and the policy of the Board of Electrical Control has been, for the last six or seven years, to place these wires underground?

A. It has been the policy of the law for four years —five years—in this city.

Q. And you, as a public officer, have been doing all that you could to procure the enforcement of that statute?

A. Yes, sir. 640

Q. You never had any doubt, did you, Mr. Gibbens, that the electrical currents commonly used did present menace to the human life?

A. I regard the electrical currents—

Q. (Interrupting.) Cannot you answer my question directly?

The Referee:

Q. The question is whether you have had, or now have, any doubts as to whether the electrical current is a menace to human life? 641

A. I do not think I can answer that question categorically, Mr. Poste. There are electrical currents, and there are a great many kinds of electrical currents.

The Referee:

You mean for lighting purposes? 642

Mr. Poste:

Yes, for lighting purposes. We will say an arc light current—the current used for arc lighting.

The Witness:

A. That has been my impression, Mr. Poste, that they were dangerous to life.

Q. And the regulations which have been formulated by the Board of Electrical Control have been with reference to protecting the public from the dangers incident to the use of such currents, have they not? 643

A. Yes, sir.

Re-direct examination by Mr. Cockran:

Q. Mr. Gibbens, do you mean, by there being a menace that they are necessarily fatal?

A. Oh no, sir.

644 Q. Will you please explain what you mean by that?

A. What I mean by answering Mr. Poste's question in the affirmative is that it might possibly, in my judgment, prove fatal to some individual if allowed to come in contact with him in such a way that the current would be transmitted through him to the earth, and, again, while not necessarily proving fatal, might be dangerous to life in the fact that they might cause severe injury which was not necessarily fatal, but 645 might be so, as, for instance, the burning of some portion of the body. And, again, they might be dangerous in the sense that they would, under some circumstances, communicate a current to a building which might set the building on fire and thereby endanger human life, although not necessarily killing anybody.

Q. Then, when you speak of them as a menace, you mean that they are dangerous?

A. Yes.

646 Q. In the sense of maiming, as much as killing?

A. We regulate the electricity just as the City of New York regulates the way trucks and wagons shall be driven through the streets, because, under certain circumstances—under certain conditions—some injury to some citizen, or some property of some citizen, might result.

Re-re-cross-examination by Mr. Poste:

647 Q. Do you know the electrical energy usually transmitted over wires by the corporations that use the alternating current?

A. Well, it has been stated to me frequently as being in the neighborhood of 1,000 volts, electro-motive force.

Q. How many amperes?

A. I have never received information as to the number of amperes.

Q. Do you understand, Mr. Gibbens, that the electrical energy transmitted over the wires varies at different times in the day—I mean transmitted by the alternating-current people? 648

A. Well, yes; as, for example, at certain times there is no current transmitted over the wires, and at other times, as I say, in the neighborhood of 1,000 volts.

Q. But is the electrical energy transmitted over the wires by all kinds of electrical illuminating companies somewhat with reference to the demand which is made upon it for lighting purposes, having reference, of 649 course, to the hours of the day?

A. That is absolutely true with reference to the arc lighting by continuous currents. They use there just such current as is necessary to light the number of lamps that they have. As to the alternating current, used for incandescent lighting, I am not able to say whether the current is of the same nature—the same strength—all the time or not. I know the general principle on which those incandescent lights are 650 worked. An induced current is set up in a coil near by the primary wire through which the current passes, and I cannot say whether through the induced—whether the current in the main conductor is necessarily made elsewhere or not, according to the number used. However, I do know that they generally use about 1,000 volts in the alternating system.

Q. Mr. Gibbens, you have testified that you gave testimony before a coroner's jury in regard to the case 651 of Murray, did you not?

A. Yes, sir.

Q. Can you state what the verdict of that jury was?

Mr. Cockran:

I do not think that has anything to do with this. If you want it in I have no objection.

652 Mr. Poste:

I do not press the question.

Q. About what date was that, Mr. Gibbens?

A. I think it was about eighteen months ago; in that neighborhood.

Q. You said that you made a special investigation in regard to that, did you not?

A. No, sir, I did not.

Q. You did not make any investigation? Your
653 testimony was only in regard to the regulations. Did you make any investigations as a public officer with regard to these other cases?

A. No, sir; I never made any investigation in the sense that you mean. I have reports of my inspectors and my expert, and so on, as to the general condition in which the wires were at the time these men were alleged to have been killed, but as to making any investigation, I have not done that at all in any case.

654 Q. Mr. Gibbens, have you any doubt as a scientific observer and a student of electricity and its results — all its results — have you any doubt that an electric current can be produced by a dynamo of such energy, having reference to voltage multiplied by amperes, as to kill the human being to whom that current is applied scientifically in every case?

A. I have grave doubts.

Q. Your testimony, then, is merely one on conditions — uncertainty?

655 A. I testify to what I know, not as to what I do not know.

Q. Of course you do not know; nobody knows.

A. I am glad to hear you say so.

Q. Now, I want to know, because the currents have never been applied to human beings, with that point in view; I want to know now the grounds of your theory of doubt?

A. The grounds of my theory of doubt are these: The effect of the electrical current on different organisms is different, just the same as the effect of whisky 656 on different organisms is different. One man can drink a pint of whisky and get fat; another man cannot drink a pint of whisky without dying immediately. In the same way, one man can meet a burglar in his house at night and face him as a man and arrest him, while another man will faint at the shock from the effect of having met somebody in the dark that he does not know. The only way in which I can account for anybody being killed by electricity—if there ever 657 has been anybody killed by electricity—is by what is known in medical science by "shock;" that is to say, the action upon the nerves is of such a character that the heart is stopped, and so forth. There are other theories. For instance: that the blood is depolarized. Now, if the blood is depolarized, the common supposition would be that through the discharge of another current of electricity, or the electricity which is accumulated, depolarized the blood; that that person, if it was through depolarization of the blood, might 658 be brought to life again. But while we know that the effect of electricity is so different, and while we don't know that any amount of electricity will kill any given person or any given animal, it is impossible for a man not to have grave doubts that there may be animals or men that no amount of electricity would kill.

Q. Then the grounds that you have stated are the only reasons that you have for entertaining doubt?

A. Those are the reasons that I have for entertaining doubt. 659

Q. The cases of the dogs that you have referred to, and these individuals that you have referred to — are those the only cases of death that you have been personally cognizant of by electricity?

A. Yes, they are the only cases of death — alleged death — by electricity which I have taken much interest in.

Q. I ask you, "That you have been personally cognizant of"?

660 A. Excuse me, Mr. Poste, but I was hardly personally cognizant of these — did not see them. There have been other alleged cases of death by electricity.

John H. Noble, called as a witness on behalf of the relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

661 Q. Mr. Noble, I understand you are an electrician by profession?

A. Yes, sir.

Q. You were present at the laboratory on Friday last, were you?

A. Yes, sir.

Q. That is, on Friday the 12th?

A. Yes, sir.

Q. You were accompanied by other persons, were you not?

662 A. Not directly; I went there with Mr. Kenneson.

Q. There were other persons there?

A. Yes, sir.

Q. Will you just tell us who were present—the Referee was present?

A. Mr. Becker, Mr. Hatch was present, Mr. Poste.

Q. Mr. Brown?

A. Mr. Brown, Mr. Kenneson and Mr. Sterringer, Mr. Wirt and Mr. Ott, and several other gentlemen

663 whom I don't know.

Q. Mr. Sterringer was the electrician of the Edison laboratory?

A. No, sir; he was an expert in the Edison Company; Mr. Wirt was the electrician in the Edison laboratory.

Q. Were any experiments conducted there for the purpose of ascertaining the reliability of the capacity of the Wheatstone bridge to measure the electrical resistance of human beings?

A. Yes, sir. 664

Q. Will you please describe what these experiments were?

(Question withdrawn.)

Q. Mr. Hoy, this gentleman (indicating) was present?

A. There was a gentleman by the name of Mr. Hoy; I do not recognize him.

Q. Mr. Hoy was present?

A. Yes, sir. 665

Q. Will you please go on and state the experiments?

A. The Wheatstone bridge was arranged, as is ordinarily done, for measuring resistance, and for electrodes two glass jars containing a solution of sulphate of zinc, and the two ends of the wires were fastened on and were immersed in this liquid. Then the different parties were measured by putting the hands in the liquid, and the measurements were taken. 666

Q. Will you state what persons were measured and what the measurements were?

A. Mr. Ward was the first gentleman measured.

Q. Who is Mr. Ward?

A. Mr. Ward is one of Mr. Edison's electricians. Mr. Ward had a resistance of 1,310 ohms; Mr. Poste had a resistance of 1,210 ohms; Mr. Biddle, 1,070; Mr. Walker, 1,200; Mr. Hoy, 2,500; Mr. Hatch, 1,360, and then a few minutes later, 1,800.

Q. Then the lawyers were in the proportion of 13 to 25? 667

A. Yes, sir.

Q. Were any of those gentlemen measured twice?

A. Mr. Hatch was measured twice, and possibly some others.

Q. Mr. Hatch's first measurement was as you have now announced it?

A. Yes.

668 The Referee:

These were measured by putting their hands in the water?

Mr. Cockran:

Yes.

The witness:

669 Mr. Hatch was measured twice in this same manner with his hands; one time 1,360 and another time 1,800.

Q. Mr. Hatch was measured twice in the same way?
A. Yes.
Q. What was the result in each case?
A. 1,360 and 1,800.
Q. So that his resistance had risen in that time?
A. Yes, taken practically under the same conditions.
670 Q. Was Mr. Hatch measured again?
A. Not that I recollect, in this manner.
Q. Was he measured in the other manner?
A. Yes. They then put on the floor a piece of zinc, I should say about 6 by 10 inches, and had on it a piece of felt, three-eighths, saturated with a solution of zinc sulphate; and then they had another small plate about the size of the hand, and on that they had another piece of felt saturated with zinc sulphate, which was placed on the head. 671 Mr. Hatch was the gentleman who had the first measurement taken, and he removed his shoes and stockings, and, placing one foot on the piece of felt on the floor and the other plate being held on his head by one of the other gentlemen—
Q. That is, the plate being placed on his head?
A. Yes, his resistance was 9,870 ohms. He was then requested to put both feet on the plate, and the measurement again being taken his resistance was reduced to 8,170.

Q. If that had been a piece of wire metal whose resistance you were measuring, would it have varied that way, according to the various tests, or would it have shown the same resistance? 672

A. If it was measured from the same two points it would have shown the same. If you measure a metal —if you measure it from the middle to one end—you would get one result, and from both ends you would get a different one.

Q. That is, if you measure half of it? 673

A. Yes.

Q. I mean if you took a piece of wire and tested it, according to the Wheatstone bridge, would it have shown the same resistance?

A. Yes.

By the Referee:

Q. You mean by that, if it was measured in the same way? 674

A. Yes.

Q. In the first of these experiments they passed it from hand to hand?

A. Yes, sir.

By Mr. Cockran:

Q. Take a piece of metal. Does the Wheatstone bridge show the same resistance all the time?

A. Yes, sir; it does. 675

Q. No matter how you test it?

A. Yes, sir.

Q. Was any other gentleman tested the second time in a different way?

A. After the experiments were made on Mr. Hatch some of the gentlemen remarked that the contact was not very good, and they thought they could get a better contact by using a piece of sponge. It was a piece of sponge as large as my fist, which was procured, and

676 this was applied at the back of Mr. Hoy's neck, with one foot on the plate on the floor under the same conditions as in the previous test, and his resistance was 7,097 ohms, and then after a short time it was 6,297, under the same circumstances.

Q. By the same test?

A. Yes. In a short time, 6,090. Then he was required—we got a jar containing zinc sulphate, and he was requested to put his feet in it, and his resistance, 677 being measured this way with the sponge still on his neck, was 5,040 ohms.

Q. Was there anybody else got a second test?

A. I do not think there was.

Q. Was there any instance in which the Wheatstone bridge showed the same measurement, when it was applied twice to the same person?

A. I think that Mr. Wirt was measured twice—one of the gentlemen—with the results agreeing very closely.

678 Q. That is the only instance?

A. Yes.

Q. In the case of Hatch, two tests showed different results?

A. Yes, sir.

Q. Applied in exactly the same manner?

A. Yes.

Q. The difference in Hoy's resistance was according to the different measurements?

679 A. The first measurement, through his hand, was 2,500; through his feet, 7,097, 6,297, and 6,090—7,097 with one foot and 6,090 with two feet.

Q. Is there any way that you could tell what his natural resistance would be?

A. No.

Q. Could you with a wire?

A. Yes.

Q. So that if I gave you Mr. Hatch for a subject you could experiment with him, and not tell what his resistance would be?

A. Yes. 680

[The current used in these experiments was four cells of battery.]

Cross-examination by Mr. Poste:

Q. Is it not your recollection that there were three measurements from hand to hand of Mr. Hatch?

A. I only recollect two of them.

Q. Don't you recollect that after the 1,800 measurement he was requested to place his hands further into 681 the solution, and then a third measurement was taken?

A. I will refer to my book of my original notes. I have it on the back of an envelope. No, I have only a record of those two. It might have been that I missed that because I was around behind watching the measuring.

Q. Don't you remember that Mr. Hatch had two measurements from hand to hand? 682

A. Mr. Wirt stood by him. One man, who was measured from hand to hand, came up pretty much the same.

Q. Don't you remember that that was the case with Mr. Hoy and Mr. Wirt also?

A. I remember it was with one of those gentlemen; I do not know what his name was. But it might also have been taken of Mr. Hoy.

Q. You are in the employ of the Westinghouse 683 Company?

A. Yes, sir.

Q. And were that day that you went there?

A. Yes, sir.

Q: In what capacity are you employed by the Westinghouse Company?

A. I am employed to look after the electrical engineering in the Middle Atlantic States.

Q. You have had practical experience in the use of the dynamo?

684 A. Yes.

Q. What is the ampere capacity of their 1,050 volt dynamo?

A. They make three different sizes—four different sizes.

Q. Give me the ampere capacity of the four different sizes?

A. One of them is—

Q. One moment; are they of 1,050 volts?

685 A. Yes, sir; one of them has a 22-ampere capacity, another has 33, another has 65, and another has 120. There is a maximun of speed that they may be run up to—they may be run up to 5 per cent, without doing any particular damage to the machine, by putting more load on it.

Q. And do you have to increase the motion of the armature to produce that result?

A. No, sir.

Q. It is done by further exciting the field?

686 A. That is the principal way of doing it.

Q. What you mean by that is, as I understand it, that the dynamo is excited by an electrical force outside of it?

A. By a separate machine.

Q. Is an ammeter used in connection with these machines?

A. Yes, sir.

Q. Whose ammeter is it?

687 A. It is one that was gotten up by the Westinghouse Company.

Q. Is there any specific name as applied to it?

A. Simply an "ammeter."

Q. You consider it perfectly reliable?

A. Yes, sir. It is not a scientific instrument—it is good enough for commercial purposes; it is within five per cent. when it is in order, and when it is out of order there is no telling.

Q. Do you know when it is in order?

A. Yes, you can tell pretty surely. 688

A. You use it about every day, don't you?

A. Yes, sir.

Re-direct examination by Mr. Cockran:

Q. Would anybody else, except a person who is familiar with it, know whether it is in order or not?

A. No, sir; I hardly think they would.

Q. It is an instrument designed by, and the secret 689 of which is known only to, the Westinghouse people?

A. No, sir; it is a general instrument, made on general principles, but in all those machines you have a particular company which generally requires an intimate acquaintance with it to be able to use it.

Q. Do you know anything about the sensations of the persons who were subjected to these tests over there?

A. I remember Mr. Wirt was asked, and he said he felt nothing at all. 690

[It is stipulated that in the instance referred to in the testimony of this witness, the current was substantially imperceptible in the case of the persons named, but in the case of Mr. Hatch he claimed to feel a perceptible sensation in both wrists.]

Re-cross-examination by Mr. Poste:

691

Q. Are you cognizant of any deaths arising from the use of the alternating currents by accidents or otherwise?

A. Nothing, except what I have read in the papers.

Q. How long have you been engaged in the electrical business?

A. Seven years.

Q. And by how many companies have you been employed?

692 A. Two of them.

Q. Which companies?

A. Edison and Westinghouse.

Q. How long were you with the Edison Company?

A. I was with the Edison Company three years.

Q. And the Westinghouse the rest of the time?

A. I think so—two years—two years before I went there I experimented in laboratory work.

Q. During the period that you have been employed in electrical companies you have never known the 693 facts relating to any deaths?

A. No, sir: I have not.

By Mr. Cockran:

Q. What kind of a current did you use?

A. Galvanic current—a current from a battery.

Alexander McAdie, called as a witness on behalf of the Relator, being duly sworn by the Referee, testi- 694 fied as follows:

Direct examination by Mr. Cockran:

Q. Mr. McAdie, where do you reside?

A. New York City is my home. I am absent, though, a great deal.

Q. What is your occupation?

A. I am, to some extent, especially, a student of 695 atmospheric electricity. I may say I am a specialist on the subject of lightning.

Q. Have you studied the electricity that is familiar in commercial use?

A. Yes; it has come under my observation.

Q Are you generally familiar with all forms of electricity, so far as they have become familiar to human science?

A. I have studied for seven years the subject of electricity, particularly atmospheric electricity.

Q. Where were you educated, Mr. McAdie? 696

A. Public schools and the College of the City of New York. Then I got my A. M. there some time afterward, and I studied for three years in Jefferson Physical Laboratory at Cambridge. I got my Master's degree there for three years' work on electricity. Then I worked for the United States Signal Service Office at their laboratory in Washington, under Professor Mondenhalm, for two years on experiments on atmospheric electricity.

Q. Mr. McAdie, have you ever, since your graduation—have you pursued the studies of electricity? 697

A. Yes, sir.

Q. And you are engaged in that now?

A. Yes, sir.

Q. Have you ever observed the effects of electricity on human beings?

A. Yes, sir; I have made a study of that.

Q. Now, will you please state what your observation of the effect of electricity on human beings is— 698
what its effect is generally?

A. Generally speaking?

Q. Yes.

A. You will have to limit your question to the particular kind of electricity which you propose to deal with, because the effects are different in the case of an atmospheric charge from that of a current charge.

Q. I am speaking of current charges.

A. The effects are: first, with such a charge as it is 699
with such a current as it is proposed to use?

Q. Such a one as you have heard described?

A. Yes, the effect would be probably first unconsciousness. I speak as a layman, of course—not as a medical man.

Q. You mean visible effects?

A. Yes. Some rupture or breaking of the cortical walls of the cerebrum. The first effect is unconscious-

700 ness; the second effect is paralysis of the muscles or a paralysis of the nerves—then a paralysis of the muscles. You know that, because there is this distinct sensation of tired feeling, as if a person had done a lot of work. The muscles are tired afterward. There is a paralysis of nerves—a paralysis of muscles. Then come probably suspension of respiration and suspension of the circulation of the blood. Those are the symptoms.

701 Q. You have heard of the instrument that it is intended to use for the execution of the relator in this case described by Mr. Brown, have you not?

A. No, sir; I did not hear that testimony of Mr. Brown's. I heard some testimony, but not that.

Q. As I understand it, the culprit is to be put in a reclining position in a chair, and an electrode is to be applied to the back of his head, and another applied to his feet, and Mr. Brown said that his resistance was first to be taken by means of a Wheatstone bridge.
702 Then they were to turn on a current from a Westinghouse dynamo of 1,050 volts capacity, and that was—I mean the ordinary dynamo, 37 amperes and 1,050 volts—and I ask you if you can describe definitely and certainly what the effect of such an application to the body would be?

A. May I be allowed to criticise the method and the machine in that?

Q. Yes.

A. It is questionable if it would kill him or not.

703 Q. If it did not kill him, what effect would it have?

A. The passage of the current through him, or, rather, the sensation of the man, would depend upon several conditions: First, the man's physical resistance properties—I mean his resistance to the current. Then, again, it would depend upon the route through the body taken, that is, passage that the current might choose to take. The current might pass through his head in that case, and down one side of his body.

That is a supposition, and it might naturally come out 704 at one foot—down one side of his body, and it is supposed that one-half of the man might be shocked to the extent of death almost, or almost absolute paralysis, and the other half of the man's body might not suffer severely at all. It might be, to all intents and purposes, alive and fully alive.

Q. Well, the passage of the current then, according to you, through the body would largely depend upon the physical condition of the body? 705

A. Yes, sir; that is one thing.

Q. The physical organism?

A. Yes, sir; it depends upon the man first—that is, his nature—you cannot describe it very well—and, again, upon the physical properties of the body—I mean a man of a certain skin might be very different from a man of another skin.

Q. In other words, the structure of the body?

A. Yes, sir; that is one of the conditions.

Q. It varies in different men? 706

A. Yes, sir.

Q. And that structure would have an important effect upon the effect of the discharge of the current?

A. Yes, sir.

Q. Now, does it necessarily follow, because the connection is made between a man's head and feet, that therefore the electric current would pass through the body at all?

A. I do not know, of course, for a certainty, but I 707 don't think it would.

Q. Does it necessarily follow?

A. No.

Q. I mean, from anything that is now known to science, does it necessarily follow that an electric current passing through the body of a man, by the methods that I have described, would pass through any vital part?

A. It does not follow.

708 Q. Let us see if we can understand this matter clearly. We have had it testified to before, but, for the purpose of your testimony, I will ask you the question: You have two wires, one of which is brought to his head, and the other to his feet, showing the current. Now, to make the current operative, these two wires have to be joined together in some way, either directly or through the connecting substance?

A. Yes, sir.

709 Q. The man in this instance would be the connecting substance?

A. Yes.

Q. What would be effected by its operation would be simply to pass the current of electricity through the man, the same current that is passing through the wires, and the current passing through the man would reach the wires, and so go on?

A. Yes, sir.

Q. Now, as I understand you to say, that current 710 passing through the man might affect a vital part, and might pass right down and paralyze one side of his body?

A. Might.

Q. And this would be true, no matter how powerful the current might be?

A. Yes, sir.

Q. Now, assuming that death did not ensue, what would the effect be — what would a current do if it 711 was not kept up, if it did not kill by shock?

A. It would probably do the same to a man that it would do to any substance imposed there — carbonize them or votalize them — burn them up.

Q. In what way would it burn them? Will you describe the method in which the burning would occur? It would not be like a lighted candle?

A. It would be simply a char. You would have the man and you would have him charred like a piece of charcoal — burnt — scorched and burnt.

Q. Now, Mr. Brown has testified that he is able to prevent any burning by the interposition of wet substances, sponges or clothes between the electrode itself and the object at the point of contact. Do you understand that? 712

A. Yes, sir, I understand it.

Q. What effect would that have? Would that prevent the carbonization if, under the language of this statute, that current was continued until the man was dead — would it permanently prevent it, assuming the man did not die by shock? 713

A. I think not. I think the sponge might be burnt up to.

Q. Assuming that he kept plenty of water on that — I believe that Mr. Brown is going to have running water there — have a hose and pour it over the two points of contact — would that prevent the carbonization?

A. It is such a hypothetical case that I do not claim to stretch my imagination so far. 714

Q. It is perfectly possible and natural, and within the bounds of reasonable possibility, that a man would not be killed by the shock that the current would produce — the shock might run through those parts of the body that are not fatal?

A. Yes, sir.

Q. And that current, under the law, has got to be kept up until the man dies from something — no matter what he would die of? Is there anything that would ultimately prove fatal if it was kept up, assuming that he did not die by a shock? 715

A. As I understand your question, the import of it is to prove that the current would finally burn up the man.

Q. Even with the water?

A. Yes.

Q. I ask if that is possible, even if there was any water put on?

716 A. I could not make a definite answer until I knew what kind of terminals — electrodes — might be there. I think I might answer that, as they would keep up the current they would char the man — burn him to death.

Q. As a matter of fact, if this water was kept on continuously, would it have any effect to deflect the current in any way?

A. Yes, sir; certainly.

717 Q. We will assume, according to Mr. Brown's plan, that he has a hose there, or one of these rubber pipes, or some other kind of an arrangement, so that he can turn it on at both ends and keep the water refreshed—

Mr. Poste: He does not say that.

[Continuing:] Assume it is a pitcher, or something
— assuming that a flow of water was kept con-
stantly on that, would not that have a tendency to
718 deflect the electrical current?

A. Yes, sir.

Q. What effect would that have on the experiments?

A. I think the whole effect would be considerable uncertainty to the person there. It would be better ultimately that they took the sponge off and let him have the current from a simple wire itself.

Q. You would rather have carbonization than
719 scalding?

A. Yes, sir.

Q. Now, Mr. McAdie, have you ever observed the physiological effects of lightning strokes, or do you know what they are?

A. Yes, sir, I have a knowledge — that is, a knowledge gained by extensive reading — all the reading I can get — I have studied it.

Q. Will you tell us what they are, from your reading?

A. There is, first, this paralysis generally. Generally the man will have paralysis — paralysis of the nerves — and then a paralysis of the muscles. Then the suspension of respiration, and then suspension of circulation. 720

Q. Now, what general knowledge of lightning have you got? You are familiar with it, are you not?

A. I have, you may say, a good knowledge.

Q. That is, you have got as much of a knowledge as can be acquired by reading and study? 721

A. By reading and study and experiments.

Q. Is a lightning stroke necessarily fatal?

A. No, sir.

Q. Why do you say that, Mr. McAdie?

A. Because there are cases on record where people have been struck by lightning and have been pronounced dead by those around, and where they have recovered. That is, a person struck has recovered after a lapse of some minutes, and in some cases a long time has elapsed. 722

Q. Have you got any cases of that kind?

A. Yes, sir.

Q. Will you mention some of them to us? If you have got any notes you can take them.

A. I might mention this case; it is a case of "Lightning Shock with Recovery."

Q. Consult any memorandum you choose.

A. Here is a case of four persons—

723

Mr. Poste:

I will object to it, of course, as hearsay.

Q. Where did you get your information?

A. This particular case is from the party who made the examination.

Q. Who is it?

A. It is the case of a lady struck by lightning in the summer of 1887.

724 By the Referee.

Q. It is a reprint from the *Medical News* of August, 1888?

A. Yes, sir.

By Mr. Cockran:

Q. What were the circumstances attending that?

A. Lightning struck a house, and here follows a description of the effect, showing that it was a very intense discharge. 725

Q. State what they were.

A. It is proved that the electrical influence was intense by the fact that the links of a chain in the house in some places were nearly melted apart. The solder on the corner of a birdcage was completely melted. The nail in the floor was roughened and melted; it appeared as if it had been partially melted at a high temperature. Then there were four persons. One was 726 rendered completely insensible; another was thrown upon the floor and unconscious for a second. Then they ran out—the three ran out—they were out of the house, and they ran out on the lawn. They came back afterwards, thinking of their companion inside, and went into the house and found that she had been thrown from the chair in which she was sitting directly across another chair, a distance of two or three feet.

727 Q. Would it be possible by any artificial means—by any current of electricity generated by artificial means—to throw the body, the weight of a human being, 3 or 4 feet from one chair to another?

A. No, sir.

Q. Now, go on.

A. She was completely unconscious, motionless, muscles relaxed, left eye closed, right eye open, face purple, pulse at wrist imperceptible, neither heart sounds nor respiratory murmur to be heard.

Later, an examination showed the course of the 728
electric current to be as follows: It struck the head above the left eye, midway between the eyebrow and hair, which was apparently the part nearest the corner of the birdcage, passed along in front of the ear, then to the central line of the thorax, descending by the stocking supporter which was attached to the corsets, thence to the top of the stockings, leaving marks upon both limbs, but more especially upon the left, on the back of which, just above the knee-joint, was a burn
about the size of one's hand. It had the appearance 729
of an ordinary burn and was only superficial. No trace of the current could be detected again until the foot was reached, from which it passed off by the joint of the great toe, tearing a place about two inches in diameter in the stocking and slipper, but not leaving the slightest mark upon the skin.

Q. What was the result of that?

A. The great part of this paper is this: The
patient was removed to the piazza, the clothes about 730
the neck and chest were loosened, and artificial respiration commenced. In from 3 to 5 minutes the first sign of life appeared in the flexion of the right leg. The dark color disappeared from the face and the pulse could be felt at the wrist. It was then weak, rapid and irregular. The treatment was kept up for 10 or 15 minutes until the body began to feel cold, when the woman was removed to the house and placed upon a bed. The moving caused a disturbance of the circula-
tion, as was shown by the pulse, which became very 731
faint and fluttering. In order to encourage the circulation hot fomentations were applied to the chest, and as soon as they became cold were replaced by fresh ones. Soon a new train of symptoms set in. There was difficult respiration. The mucus and saliva, which were very abundant, had gravitated back, and could not be swallowed because of complete paralysis of the pharynx. There was, in fact, paralysis of almost all

732 the muscles of the uppermost parts of the body, including the arms. The symptoms were those exhibited by an animal when being asphyxiated: violent muscular contraction, difficult and forced respiration. To remove the saliva and mucus which caused the obstruction, the head and trunk were lowered. Handkerchiefs were also used. These were placed over the finger and passed back as far as possible into the throat, and in this way large quantities of saliva and
733 mucus were gotten away. From one-half to three-quarters of an hour after the accident, consciousness began to return and the muscles of the arm to regain strength. Sight was restored to the right eye, although it could not be moved. Though the subject could hear, she could not speak. This was shown by the fact that when asked to press the hand if she felt better, she responded. About this time paralysis began to disappear gradually from the tongue. Improvement continued: brief intervals of sleep were enjoyed through
734 the night, and there was absence of any considerable pain. It goes on with the rest of the treatment for several days, and the patient recovered.

Q. She recovered completely?

A. Yes.

Q. Do you know of any other instance of that kind?

A. There is a case given in the *London Lancet* of a man who was struck by lightning, pronounced dead by
735 those around him, as I understand it, and was carried and taken to his home as dead; taken as dead, and it was twenty-four hours before medical aid was rendered, but they restored him to life.

Q. What number of the *Lancet* was that in? Give us the information so that we can spread it on the record, and it can be verified by these gentlemen.

A. *Lancet* of October 1st, 1887.

Q. This was twenty-four hours; twenty-four hours before he received medical aid?

A. Yes, sir. 736

Q. And during all that time he appeared to be dead?

A. Yes; he may or may not have appeared to be dead, but it was the report of those around him.

Q. He was thought to be dead.

A. Yes.

Q. Have you got any instance that you can mention now, from memory?

A. There are any number of cases where people have been struck by lightning. 737

Q. And have escaped?

A. Not been killed; yes.

Q. That we concede, but those are the two instances that you know of where people have appeared to be dead and have actually revived?

A. Yes.

Q. Now, Mr. McAdie, I ask you this question for the purpose of completing your testimony, though I do not think there is very much dispute about it: 738 Are all persons equally susceptible to the stroke of lightning? Would a stroke of lightning affect two people in the same way?

A. I think not.

Q. Why do you think not?

A. Because there is a difference in persons—difference of condition.

Q. For instance—you take—do you know of any case in which the apparent effect of lightning would 739 appear in the destruction of some article, and a person close to it escape and a person more remote suffer?

A. It is hard to think of a case.

Q. From what you know of lightning, is that possible?

A. It is possible.

Q. What would you attribute it to?

A. To the fact that some persons are more susceptible to the stroke of lightning.

740 Q. Did you hear Commissioner Gibbens's testimony to-day?

A. Yes, sir.

Q. And his illustration that some persons would be shocked at the reception of a burglar while others would not?

A. Yes, sir.

Q. Is that a fair illustration?

A. I think it is very fair; I think he put it in a very good light; I think he has done very well. 741

Q. We have some testimony here, Mr. McAdie, as to the greatest spark that ever was produced by artificial means. Are you able to state what is the greatest spark that has ever been produced?

A. I think the greatest spark produced by artificial means—electric spark—was forty-two and a half inches.

Q. Where was that produced?

A. Produced by Mr. Spottiswood's large induction coil. 742

Q. Then thirty-six inches is not the maximum, as Mr. Brown testified?

A, No, it is not.

Q. A spark of forty-two inches—how would that compare to a flash of lightning?

A. That particular spark, from that very large induction, might be very well compared to a stroke—to a lightning flash in its action.

743 Q. It can be very well?

A. Yes, sir.

Q. How can it be? Explain that?

A. It is somewhat similar in its nature to a lightning flash.

Q. Have any experiments been tried to test its effect on life?

A. Yes.

Q. Where were they tried?

A. In London there was an experiment made with

a machine and the induction coil at the Polytechnic 744
Institution, where a rabbit was placed between the terminals in the sparking distance. The rabbit was placed there and the sparking distance was 29 inches, and the spark passed round the rabbit, but did not kill the rabbit.

Q, That spark then was perfectly harmless?

A. That spark was, as far as the rabbit was concerned.

Q. Do you think it would be safe to apply it to 745
other living organisms?

A. Think it would be safe? No, I would not like to be the organism.

Q. In other words; that spark which played around the rabbit organism, you would not like to have it come near you?

A. No.

Q. You think it might prove fatal?

A. It might prove fatal.

Q. Now, is there any safe conclusion that can be 746
predicated upon experiments made with animals, such as have been described here, as to the effect of an electrical current upon a human being?

A. I think not.

Q. In all that you have been able to discover of electricity, is there anything known to man which would indicate the character of a current that would be certain to kill a human being? Is that capable of demonstration—what would kill a human being? 747

A. It is capable of demonstration, I believe, but it has not been demonstrated yet.

Q. That has not yet been demonstrated?

A. Yes.

Q. But you think that with the progress of science it will be demonstrated?

A. Well, I see no reason why experiments should not be made.

Q. But, what you say now is that, so far as human science has demonstrated, it has not been proved?

748 A. That is what I mean.

Q. And are there any means of human knowledge to produce a current that would certainly kill?

A. Would you repeat that?

Q. Are there any means now known to human science—any instrument—that would generate an electrical current that would be perfectly sure to kill?

A. That the one operating it could say that the subject would die within a certain time?

749 Q. Yes.

A. I think not.

Q. Are you not certain?

A. In all those matters I am not certain of anything.

Q. When you come to deal with electricity, you are not certain of anything?

A. Yes, sir.

Q. There might be a machine right near us that would do it?

750 A. Yes, sir.

Q. There might be electrical properties in this piece of wood that might be generated that would kill anybody?

A. It is possible.

Q. Your testimony, as I understand it, is that there is no means now known to science that can be relied upon with any certainty to produce death?

A. Instantaneous death? I would like to qualify 751 that.

Q. You believe death could be produced by gradual burning?

A. Yes, sir; if you keep long enough at it you can kill a man.

Q. But the process of killing, in your judgment—the current might be passed through the person without striking any vital part?

A. Yes, sir; it would be a lengthy operation. By lengthy I mean the element of time that would enter.

Q. It would take a long time to carbonize a man, would it not? 752

A. It would depend upon the particular man.

Q. Given a man of reasonable toughness, it would take him some time to be carbonized?

A. Yes, sir.

Q. And it would not be an instantaneous carbonization; it would be a gradual one?

A. Yes.

Q. So that it would be a gradual burning of the flesh; that is to put it in plain English? 753

A. Yes, sir.

Q. Now, are there any experiments which prove how electrical currents kill when they have proved fatal?

A. No, sir.

Q. You simply see the death?

A. See the death, that is all; you do not know that the electrical current produced death. I mean that it was due to the passage of the current in that body that death ensued. 754

Q. You simply know that a man pulled the wire and he died?

A. Yes, as a practical effect.

Q. Have you ever seen the body of any person who was killed by contact with electric wires?

A. Yes, sir.

Q. Whose body was that?

A. Mr. Quinn's, who was killed by the Brush electric light some weeks ago. 755

Q. Did you investigate that?

A. Yes, sir.

Q. Describe it to us as you saw it.

A. The body; I went to the Coroner and I have made notes, made memoranda, on returning from the autopsy, or rather the autopsy examination.

Q. Was there an autopsy?

A. No, sir; not if you mean by that a cutting of the body.

756 Q. That is exactly what I mean.

A. No, sir; there was a sort of examination of the body.

Q. Will you describe what kind of examination it was?

A. The body was on ice, of course, and we examined the body for the marks of the current on it. We traced the current down the man's body.

Q. Do you know of any case in which an autopsy has been made or performed on persons killed by electricity? 757

A. I know of no case, and I believe none have been made.

Q. No autopsies have been made?

A. None to trace the current to my knowledge.

Q. When you speak of an autopsy, you mean the examination of the body?

A. I mean a cutting of the body to get at the nerve tissues, to take them out to see what the action of the current on those fibres has been. 758

Q. That has never been done?

A. As far as I know that has never been done.

Q. And the autopsies that have been performed in these cases have been, so far as you know, examinations of the internal appearance of the body?

A. I think so; yes.

Q. Why do you say that? Why do you state that there have been no autopsies known?

759 A. I only say "to my knowledge."

Q. Have you got any knowledge? Did you make any calculation or is it simply an impression of yours?

A. I gave it as my knowledge on that point.

Q. Have you investigated and have you ascertained—have you asked anybody, have you inquired whether autopsies have been performed anywhere?

A. No, sir; I have not inquired.

Q. Did you base that conclusion because you have not been able to discover any?

A. I base that conclusion on this: That I am investigating this thing to protect life and property from the effects of electricity, and I go wherever I can and make an investigation of these cases and find out all I can about them, and I have never yet heard of a case where an autopsy has been made. 760

Q. Did you speak with the Coroner about an autopsy: in the case of Quinn, for instance?

A. Yes, sir; instantly.

Q. You were with the Coroner on this examination? 761

A. Yes, sir.

Q. Did you find-out from the Coroner whether it was usual to have autopsies?

A. I did not.

Q. Did he say anything?

A. I have an impression that it is not customary to cut up the body.

Q. Did the Coroner make any statement about what his practice in that respect was? 762

A. The doctor made one statement: that he never put a knife in a man without feeling that there was no possibility of life there; that is all he said.

Q. And you base your judgment that these autopsies have never been made, because while you have investigated them you have never observed it?

A. The autopsy would have been made in that case if it had been customary.

Q. What was the appearance of the body in this case? 763

A. I should say there was considerable disfigurement of the body.

Q. Describe how it was disfigured.

A. On the right side of the temple was a scar about two and a half inches long, evidently where the wire had touched the man. I understand the wire touched him about there (indicating). And then there was considerable disfigurement on the face; the moustache

764 and hair were burned; the inside charred down the body—you could trace the passage of the current by a sort of reddish line—broad line of varying width down the body. It was that that marked the passage of the current down the body. The hands were burned considerably.

Q. How far were they burned; to the bone?

A. No; the flesh was just calloused all around.

Q. Was this burn on the face from contact with the wire?

765 A. So I understand; where the wire touched him, and it had some appearance like the imprint of the wire on the side of his head.

Q. How far did it burn on the side of his face?

A. About two and a half inches in length.

Q. How much in width?

A. From half an inch to three-quarters of an inch.

Q. Do you know how long he was in contact with the wire?

766 A. I do not.

Q. Could you judge from the burns?

A. A very short time.

Q. Suppose that wire had been kept right there on him, what would have been the effect? Would the burning have continued?

A. I think it might; yes, sir.

Q. Would it not naturally have continued, if there was anything hot to support the burning? Would there not have been enough to continue it?

767 A. I think it would; yes, sir.

Q. And as long as the contact had lasted the burning would have lasted, and it would have burned clean through the resistance? Is that your judgment of the effect of that wire?

A. The cause is all—

Q. It is all a supposition?

A. Yes, sir.

Q. What would happen. Is all a supposition?

A. Yes, sir. 768

Q. And that is true of any of these applications?

A. Yes, sir.

Q. You only know what you have seen?

A. Yes, sir.

Q. The same thing applied to another man might have a different result?

A. Yes, sir.

Cross-examination by Mr. Poste: 769

Q. What is your business, Mr. McAdie?

A. I am a student of electricity.

Q. Have you put your knowledge to any practical use thus far in connection with electrical science?

A. Yes, sir; I went before the United States Signal Service in their laboratory, and have made experiments for them.

Q. You have done so?

A. Yes, sir. 770

Q. Are you at present connected with any electrical company?

A. No, sir.

Q. How long since you were connected with the United States Signal Service?

A. 1888.

Q. And since that time you have been a student?

A. Yes, sir.

Q. Are you studying under anybody's direction, or simply reading by yourself? 771

A. I have studied under direction and I read, both.

Q. What books have you read within the last three months on the subject of electricity?

A. I keep posted on current literature; I have read several books.

Q. What have you read within the last three months?

A. I have read, for instance, Gordon's: I can't recollect all the books I have read.

772 Q. Give me your best recollection?

A. I can name some books on electricity which I have read.

Q. I want to know—within the last three months?

A. I have read Gordon's Electricity and Magnetism for one.

Q. What Gordon is that?

A. He is secretary, I think—I forget his initials—he has a large work in two volumes. I think he was secretary for one of the British—

773 Q. (Interrupting.) You have read it through during the last three months?

A. I have read it—not through—I read it years ago; two.

Q. What articles of Gordon have you read within the last three months?

A. I have read his books.

Q. Within the last three months?

A. Yes, sir.

774 Q. Have you read the whole book?—Gone through the book?

A. Yes.

Q. Again?

A. Yes.

Q. What other books have you read during the last three months?

A. I have read, for example, Heron's book on dynamos.

775 Q. What experiments have you made?

A. A great many I have made. For the last seven years I worked and experimented, and read and studied a great many books on electricity.

Q. What experiments have you made within the last three months?

A. Within the last three months I have not made any; very many experiments.

Q. Within the last year?

A. Within the last year I have not made very many experiments. I have made experiments at the 776 top of the Washington Monument during very heavy thunder storms. I have measured the electrical density of the air there for as much as six or eight months. I have used all the different electrical systems in measuring in the laboratory, both at the laboratory at Washington and the laboratory at—

Q. To determine the electrical potential of the air during thunder storms?

A. Yes, sir.

777 Q. You have devoted your study principally to the study of lightning?

A. Yes, sir.

Q. With reference to what subject have you done that?

A. I intend to make it my life-work—the study of that particular study of electricity; to use my knowledge and my ability for the protection of life and property.

Q. What books have you read on that special subject? 778

A. Almost every one I can find.

Q. Give us the names of some of them?

A. Special books?

Q. Yes.

A. I have read some of my own books, to start with.

Q. Have you written some books on the subject?

A. A great deal.

779 Q. What books have you written on the subject?

A. I have written a book published by the Signal Service; a small book.

Q. What is the name of it?

A. The book is "On the Aurora."

Q. With reference to its effects on mariners' compasses, or with reference to its effect on human life—does the aurora have any effect on human life?

A. It concerns people very much.

780 Q. In what manner does it concern people?

A. I don't understand the purport of your question. It concerns every man to know about phenomena, just as much as it does about the weather.

Q. That may be so; it never occurred to me that it was so.

A. It seems to me you are wandering off.

Q. I want to know what reference the aurora has
with reference to human life? You say you are going
781 to devote your life to that study. What reference has
the aurora to human life?

A. You will have to qualify your question; as it stands, it means nothing to me.

Q. What reference has the aurora to the protection of human life?

A. A great deal of bearing it has upon the question of the protection of life, because it is possible that
it is an indication of coming change in the weather.
For example: We might use it as we use any
782 weather prognostic, to tell us what the probability
is of the weather. That illustrates what effect the
aurora has—the practical effect of the aurora. I understand that is what your question means.

Q. That is the book, The Aurora?

A. That is one subject of it. Do you want others I have written on the subject of electricity; some, in particular, bearing upon the question of lightning, for example?

783 Q. What was the title of your book on the lightning?

A. You will find the matter printed in the United States Monthly Weather Review in 1886 and 1887. I cannot give the dates.

Q. You treat the matter of lightning with reference to the weather, I suppose?

A. Naturally it has a bearing on the weather.

Q. Answer my question yes or no.

A. I say yes; it has a bearing on the weather; I give that as an answer.

Q. Now how many books have you read on the subject of lightning, Mr. McAdie? 784

A. I have read Mr. Franklin's letters, for example.

Q. What others?

A. If you will name some books that I have not read I will tell you, because I have read almost everything.

Q. I am asking you what books you have read on the subject of lightning?

A. Anderson's book on lightning conductors is about the best work—the ablest work—that has ever been written. 785

Q. Anderson's book on lightning conductors; have you ever read that?

A. Yes, sir.

Q. What other book have you read on lightning?

A. I have read Dr. Lodge's experiments; they have not been published in book form, as most of the matter—most of the information—on that subject has appeared in the periodicals—in scrap form. 786

Q. Dr. Lodge's Experiments on Lightning Rods and Conductors?

A. Yes, sir.

Q. With reference to conductors?

A. Yes, sir.

Q. What other books have you read on lightning?

A. I cannot recall.

Q. Can you name any other book?

A. No, sir. 787

Q. Is there any other book that you have read?

A. Possibly; yes, sir.

Q. Will you swear that you have read another book on the subject?

A. No, sir, I do not swear.

Q. Have you ever read Boudin's French book on this subject?

A. No, sir.

Q. Have you ever read Arago's work on that subject?

788 A. Is that the substantial title—on the effect of lightning—are both of those books?

Q. Yes.

Mr. Cockran:

You say they are that?

Mr. Poste:

I say they are on the effect of the lightning and the 789 effect of it on human beings.

A. No, sir: no such books.

Q. You swear there are no such books?

A. No, sir: I said I did not read them.

Q. Have you ever read any books on the subject, substantially on the effect of lightning on human beings?

A. No, sir.

Q. Have you ever read any book, or chapter in any 790 book, relating to the subject of medical jurisprudence, which treats of the subject of the effect of lightning on human beings?

A. Very likely.

Q. Have you?

A. I think I have.

Q. What?

A. I cannot recall.

Q. Did you ever read any part of a book known as Tidy's Legal Medicine? 791

A. I do not know.

Q. Did you ever read Tidy's Forensic Medicine?

A. No, sir.

Q. Did you ever read Burton and Steele's Medical Jurisprudence on that subject?

A. No, sir.

Q. What books have you read on the subject, specifically, of the effects of lightning upon the human system? Can you name any?

A. No, sir. 792

Q. Did you ever observe the effects of lightning upon the human system personally? Did you ever see the effects of lightning upon the human system personally?

A. That is a hard question to answer, because I made experiments myself during six years. I insulated myself at the top of the Washington Monument and charged myself—

Mr. Cockran: 793

That is an observation within the meaning of your question?

Q. My question is: Did you ever observe the effects of a stroke of lightning upon human organism?

A. No, sir.

Q. Did you ever see a person after death that had been killed by a stroke of lightning?

A. No, sir. 794

Q. Did you ever see a person that had been struck by lightning and recovered?

A. Yes, sir.

Q. What person?

A. I have seen several persons.

Q. Give us their names?

A. I cannot give you the definite names of one person, but he was on the top of Mount Washington employed in a printing office; he claimed he was struck by lightning. 795

Q. How do you know?

A. It was published in all the papers around, and he told me myself, and it was periodical evidence. Several persons saw him, and another person was struck at the same time.

Q. Did these persons— How long after they had been struck did you see them?

A. I think about—I could not say.

796 By the Referee:

Q. Did you see both of them?

A. No, sir.

Q. Only one of them?

A. Yes, sir.

By Mr. Poste:

Q. How long was it after this person had been struck that you saw him?

797 A. I could not say definitely.

Q. Give us your best recollection?

A. About a month. That is one case; I have known several people who have been struck by lightning, and have talked to them.

Q. Mr. McAdie, what is your theory as to the method of demonstration that takes place when what is usually known as a thunderbolt occurs—the scientific explanation; do you understand that question?

798 A. No, I don't understand it.

Mr. Poste:

Strike it out; he says he did not understand it.

Q. Will you give me your theory as to what is the precise operation of nature that occurs when a thunderbolt, as it is commonly called, occurs?

A. I have no theory in the matter myself; my life has been mostly devoted in getting facts and getting experimental evidence.

799 Q. Are you familiar with the scientific theory upon that question?

A. I think I am; yes, sir.

Q. What is the scientific theory usually accepted upon that question?

A. There are a great many theories.

Q. Give me some of them?

A. There are theories which attribute the origin of the electricity—you will have to go back, of course,

to that—the origin of the electricity to, perhaps, the 800
evaporation—to friction—to induction.

Q. I am not talking about origin; I am talking about what takes place—of the origin of electricity as it is in the cloud—you have got to go back to get your electricity to the cloud?

The Referee:

Suppose you have got your electricity, what takes place? 801

Q. That is what my question is directed to?

A. It is a discharge there; a quantity of electricity is upon the cloud's surface. When the density of that electricity is sufficiently great to overcome the electrical strength of the dialectric, meaning by that the medium, in this case, a discharge takes place; that is, the ordinary lightning flash that you see. That may take place, of course, from cloud to cloud, or from cloud to earth; a person may receive that, in which 802
case we would call that a thunderbolt. That discharge is very similar to such a discharge as would be given by a friction machine, one of those large friction machines—a very large machine—and the person who gets it necessarily feels a shock and flies from it.

Q. Does what we call a flash of lightning indicate the only line or current or place of passage of the electricity?

A. Certainly not. We believe the air just to be 803
strained. The ordinary spark, as we see it—we can by photographic means break that ordinary flash of lightning up into perhaps a thousand oscillating objects; it is not as the eye sees it.

Q. Then the area of the air, which may be the natural field of current, may be immensely large, may it not?

A. It may be.

804 Q. What is the flash of lightning proper? What is that regarded as scientifically?

A. As the passage of electricity through the air.

Q. Is it not generally regarded by scientific men who have made a study of that subject—that what is called a flash of lightning is only the axis of passage—the centre of a more or less large field?

A. Yes, though I hardly describe it in those terms.

Q. State whether or not there is not a return shock with every passage of electricity from a thundercloud? 805

A. It is the common belief that there is. There have been many theories advanced holding that belief, but I doubt it. There is no experimental proof on the subject that I know of.

Q. Are you familiar with the writings of electricians on that subject?

A. As I said before, I make a specialty of this.

Q. Cannot you answer that question?

806 By the Referee:

Q. Are you familiar with any writings treating on this subject, whether there is a return charge or not?

A. Yes, I know of writings.

Q. Is Sylvanus Thompson competent authority on the subject of electricity? You know of him?

A. I know of him.

Q. You know what position he holds in England?

A. No, sir; I did know some years ago.

807 Q. What is your opinion as to the subject of electricity?

A. On the subject of electricity?

Q. Yes.

A. I would rather not give an opinion.

Q. Do you know anything about John C. Sprague?

A. I know of him.

Q; Do you know anything about his competency on this subject?

A. I have my own opinion, but would rather not give it.

Q. You may give it. 808

A. I will keep my opinion for myself on that subject.

Q. You decline to say?

A. Yes.

Q. Do you know about Gerbonitzky as a writer on electricity?

A. No, sir.

Q. Never have read his works?

A. No, sir. 809

Q. You never have heard of it?

A. I don't remember ever hearing.

Q. Have you read the writings of any of these gentlemen I have mentioned?

A. I have, many years ago; I read Mr. Sylvanus P. Thompson's book.

Q. Sylvanus P. Thompson?

A. I think that is his name.

Q. That is not his name. Can you tell me whether
those writers state that whenever a flash of lightning 810
occurs there is a return shock?

A. I think it likely that they do state that.

Q. Now, what do you say on this question, Mr. McAdie: Do you mean the return shock or the return current?

A. Return current.

Q. What do you say on this question, Mr. McAdie:
Is there or is there not, whenever a current of electric-
ity passes through or along a conductor, a returned 811
or induced current in the opposite direction?

A. There are induced charges always.

Q. That is a law of electricity, is it not?

A. Yes, sir.

Q. Now, do you say that when a current of electricity passes from a cloud to the earth there is not, in your opinion, a return current induced?

A. I do not say any such thing.

Q. What is your opinion on that subject?

812 A. There is probably an induced current.

Q. In what direction does the induced current pass relatively to the current which induces it?

A. There is one consideration about all this. There is never an induced current without the presence of a conductor, so that if you have no conductor in the air you would not have your induced current.

A. Do you swear that that is a law of electricity?

A. I do not swear.

813 Q. Will you swear that that statement that you have just made is regarded as an established electrical law?

A. I state this, that when a—

Q. (Interrupting.) Answer my question. (Repeated.)

A. No, I will not swear.

Q. Have you ever studied human physiology, Mr. McAdie?

A. Yes, sir.

814 Q. When did you study that?

A. Studied it at college.

Q. What book did you study?

A. Craper's.

Q. How long a time were you at it?

A. Two years.

Q. What is the law as regards the passage of a current of electricity when two paths are open to it?

A. What kind of a current do you mean?

815 Q. Any current of electricity. I will speak now of the dynamic current.

A. That is different; it would probably be—you mean if it had two branches to come to?

A. Yes.

A. It would probably be inversely as to the resistance.

Q. Then it is a law of electricity, dynamic electricity, that it follows the conductor of the least resistance?

A. I believe that is a law on which there is some discussion, that electricity takes the path of the least resistance. 816

Q. I am talking about the dynamic. Do you swear that it is not a law of electricity that it does not take the path of the least resistance when two paths are open to it?

A. I will not swear.

Q. You said there was a difference?

A. Yes, sir.

817

Q. Then it is a fact that lightning disregards certain principles that are followed by a manufactured current of electricity?

A. Yes, sir.

Q. Give us some illustrations of that proposition.

A. In the ordinary lightning you jump across places where it would otherwise take—it may go through metal.

Q. Is it, or is it not, a fact that lightning usually follows the best conductor? 818

A. It usually follows it.

Q. Do you know anything about the relative conductivity of various articles—materials?

A. Speaking generally; yes, sir.

Q. Have you ever made a study of that subject?

A. Of resistance?

Q. Yes.

A. Often.

Q. And of conductivity?

819

A. Yes, sir; years ago.

Q. Which is the better conductor, copper or the human body?

A. I should say copper.

Q. Can you give me any idea of the percentage of superiority over the human body? Is it large or small, that percentage?

A. I suppose it will be quite large.

Q. About how large, in your opinion?

820 A. You must compare quantities that are strictly comparable with each other and the dimensions of the human body; then I will answer.

Q. Take a muscle of the human body and a copper wire of the same size?

A. You would want to know what the difference in conductivity might be?

Q. Yes.

A. How great it might be? I know not how great it is, and I do not think that the other people do. 821

Q. Your idea?

A. The conductivity of the wire might be very much greater than that of the nerve.

Q. Can you make any estimate, or a percentage?

A. You are asking me to give—

Q. Can you give any estimate of the percentage of conductivity?

A. How can I, unless I know the condition of that nerve and the dimension of the wire. I must have 822 specific statements before I can answer.

Q. I say, take a third of a mile of copper wire of the same temperature?

A. And the same temporary conditions? You have not given those.

Q. At the same temperature?

A. Is the nerve moist? Is it damp—would it be just taken fresh out of the body?

Q. Yes, taken right from the body?

823 A. The conductivity of the wire is pure guess-work. I might say it would be about—may be, would be, a number of times greater than that of the nerve.

Q. About how many times?

A. I could not say.

Q. Would it be ten times?

A. I don't know

Q. You don't know very much about it?

A. I know as much as the next man.

Q. Have you stated the extent of your knowledge?

A. No, sir. 824

Q. Do you think you know as much as Dr. Brown?

A. About what?

Q. About that question. The conductivity—relative conductivity of those two conductors? Do you think you know about as much about it as he does?

A. I cannot answer the question, because I do not know.

Q. Then you do not know whether you know as much?

A. I do not know how much he knows. 825

A. What is the relative conductivity of woollen fibre and the human hand or human body? Do you know anything about it?

A. I have made a—

Q. (Interrupting.) Do you know anything about it?

A. Yes, I do.

Q. Tell us what you know?

A. I have made a great many experiments upon 826 the conductivity of different articles of silk upon glass; I am not sure about woollen fibre, but very likely. I have made experiments lasting for many months upon the conductivity of different properties, and I claim to be an authority on the matter.

Q. I have not disputed your claim; I want to know what you know. Now, tell me which is the better conductor, the human body or woollen fibre?

A. I could not say.

Q. Then you cannot tell whether a woollen cloth is 827 a better conductor than the human body?

A. Not unless I know something about the body, and something about the specimen of wool that is given to me and the conditions in them both. No other man can answer your question.

Q. Have you ever made any experiments to determine the resistance of the human body to an electrical current?

828 A. I have experimented on the human body.

Q. Have you ever made any experiments to determine the resistance of the human body to an electrical current?

A. I have forgotten whether I have or not.

Q. Will you swear that you have ever made any experiments in regard to the quality as a conductor of woollen cloth—any woollen cloth?

A. I am not sure whether I have or not.

829 Q. Did you ever make any experiments—

The Referee:

It is now 1.30 o'clock, and we will take a recess until 2.

After recess.

830 CHARLES TUPPER, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct Examination by Mr. Cockran:

Q. Mr. Tupper, where do you reside?

A. 226 Eighth Avenue.

Q. What is your business?

A. Restaurant.

831 Q. You were the owner of a dog, I believe, named Dash?

A. I was.

Q. Do you remember anything that happened to Dash some few days ago in connection with an electric-light wire?

A. I do, sir.

Q. Will you describe it to the Referee?

A. At half past two on Tuesday before last—I do not remember the date—if I am not mistaken it was

the 2d—I was standing in front of my door and was 832
watching the lineman and a foreman who were taking down the dead wires of the Western Union Telegraph Company—at least he informed me he was. While I was standing there, the man who was holding the extreme end of the wire nearest Twenty-second Street fell on the back of his head. I went over to the foreman, knowing him from talking to him a few minutes before, and told him of the man who had just fallen,
and he did not seem to heed what I had said, or acted 833
rather indifferently. And I went over toward the man myself, passing under the wire instead of over it; that is, directly in front of our house. The pole where the wire had crossed was about 25 or 30 feet from the restaurant. I went over to the man and, with the assistance of a man who was coming by with one of those cars that they use for drawing sand, picked him up and brought him on the sidewalk. That was for a short time, and then he sat up. I suggested to him that
we give him a drink. After questioning him he said 834
the back of his head hurt him. I saw no attention was paid to him and, thinking it was of no great importance, I walked back to the restaurant, and on my way back to the door I noticed the men who were at the other extreme end of the wire at Twenty-first Street also fall. There were men just there; I just saw them when they fell, the workmen they had for winding the wire. I then called the attention of the
foreman to those two men. He did not go near them. 835
I went back again to the pole where the foreman was standing and I began conversing with him. His not warning me of any danger or saying there was anything dangerous at the time. I paid no attention further than questioning this man who was hurt first. While standing there—it has been customary with Mrs. Tupper—we live right over the restaurant—when Dash comes down stairs we generally hand him something. We have taught him that. She handed him

836 a paper and he brought it down. When he came to the door of the restaurant, not seeing me he came out of the door and saw me standing at the end of the pole. Well, he came near where I was, and I took the paper from his mouth and he ran ahead of me, about 15 or 20 feet, in front of the druggist's, and there attempted to cross the street; that is, he got as far as the wire, and his front paw struck the wire: I was watching him the whole time. He never goes outside of the
837 house unless we are watching him. When he put his paw on the wire he jumped about two or three feet in the air. He let a tremendous yell at the time, so much so that it startled me, and I ran toward the dog, and this foreman, with the assistance of one of the linemen —I suppose it was one of the linemen—caught hold of me and told me to stop. "Don't touch that dog; if you do you will be knocked down yourself."

Q. When the dog fell, did he fall on the wire?

A. Yes, and was there in contact. As soon as he
838 fell on the wire he drew his head one side—the dog is not burned on one side, but is burned on this side (indicating), and on one side of his body.

By the Referee:

Q. You say "this side." You mean the left side?

A. Yes, sir. The dog is here and you can see him.

Mr. Cockran:

839 I should like to see him. (At this point the dog is brought into the court-room.)

By Mr. Cockran:

Q. Where did he strike first?

A. On his paws.

Q. Where you see this mark here (indicating)?

A. It is not burned where he struck at all. He struck his paws in running over the wire, and he fell on the wire as soon as he struck it.

Q. Is here (indicating) where he struck the wire? 840
A. Yes, sir.
Q. On the right shoulder?
A. Yes, sir.

By the Referee:

Q. Fell with his right fore-shoulder on the wire?
A. Yes, sir.
Q. And turned his head to the right?
A. His head right under him. 841
Q. So that the wire struck over his knees on the left side?
A. Yes, sir.

By Mr. Cockran:

Q. Leaving a big burn—gash?
A. Yes.

By the Referee: 842

Q. It is a burn about two and a quarter inches, and half an inch deep?
A. Yes.

By Mr. Cockran:

Q. Is the burn on this right shoulder about as big as that?
A. Yes, it is burnt; it is not quite as wide as that. He also has a burn on this side (indicating). 8
Q. He lay with his two paws on the wire?
A. Yes.

By the Referee:

Q. You mean on this leg—burn on the hind leg?
A. Right hind leg.
Q. How much does he weigh?
A. The last time I weighed him, about 83 pounds.

844 By Mr. Cockran:

Q. And weighs about that now?
A. I do not know; he is a large dog.

By the Referee:

Q. What is his breed?
A. Scotch collie and St. Bernard.
Q. It is a wound about as large as a silver half-dollar at the junction of the fore-leg with the body on the right side? 845
A. Yes.

By Mr. Cockran:

Q. You say the dog fell upon the wire?
A. Yes, sir.
Q. And you went to take him off and the foreman told you not to touch him?
A. I did not go near to the dog.
846 Q. You started?
A. Yes.

By the Referee:

Q. How old is he?
A. Two years and a half.

By Mr. Cockran:

7 Q. Resume from that point and tell us what occurred?

A. After they got hold of me and did not let me go near the dog to pull him off, which I felt at the time I would like to do, I went to him and asked him if he could not offer any assistance. "Why can't you pull the dog off; can't you do something to save the dog or pull him off." "There is no necessity, the dog is dead." I do not think I made any remark, but I then turned around and there was an officer standing 3 or

4 feet away, and I said: "Arrest this man." I said, 848
"I will hold somebody responsible for the dog if he is dead," and I had him arrested, and ran up stairs and told my wife. She became prostrated on account of thinking so much of the dog. I went up stairs and after staying there 3 or 4 minutes I ran up stairs to my man who is on the top floor and told him to dress himself and come down, and I put on my hat and went to the station-house.

849

By the Referee:

Q. The dog lay there all the time?

A. Yes, sir; the dog laid there all the time.

By Mr. Cockran:

Q. How did you get the dog off of the wire?

A. An expressman on the block just below me pulled off his vest, I think, with the advice of one of the linemen, and put it on the ground and stood on
it, and the lineman told him to get a dry rope or get a 850
line, and he got a rope and lassoed the dog; at the first they said he could not let go of the rope; he could not let go; that was said by one of the linemen.

Q. How long was the dog there?

A. I should judge—I was not there—about 15 minutes, I should say.

Q. How long do you know he was there while you were going to the station-house?

A. I should judge it took me about 10 minutes to 851
get started.

Q. He was there at that time?

A. He was there.

Q. You know that?

A. Yes.

Q. As you understand, he was there about 15 minutes?

A. Yes.

Q. Which is within your knowledge?

852 A. Yes.

Q. What was done after the dog was got off the wire?

A. He was brought right in and carried into the restaurant. When I came back he was there in that condition.

Q. Did he show any signs of life?

A. No, sir.

Q. Did you examine him?

A. No more than looking at him; no, sir.

853 Q. He lay there perfectly still?

A. Yes, sir.

Q. What was done?

A. Well, one of the men who came in to look at
him—who came to look at the dog—said he would get
something for him—something that he thought would
revive him, and he went away and came back
with a soda-water bottle, and asked me to give it to
him. Not knowing the man, I said, "Who are you?"
854 He said "I am a dog doctor," and seeing the condition
of the dog I thought there was no need—I was under
the impression that the dog was dead. I suppose it
was at least an hour afterward when a gentleman
came in there who is connected with the Manhattan
Illuminating Company—I think it is—a gentleman I
had contracted with, or whom we had considered the
matter with, of putting electric lights in the restaurant—
came in and asked me how the dog was, and he sug-
855 gested that I dig a hole and put him in it, and he
thought that would draw the electricity from him. So
we scraped a hole big enough to put the beast in, and
put him in—I suppose half his body or a little over,
and left him there.

By the Referee:

Q. What time of day was this?

A. About half-past 3 or 4 o'clock, somewhere in that neighborhood.

Q. What time was he exposed to this shock? 856

A. Half-past 2—between half-past 2 and 3 o'clock.

By Mr. Cockran:

Q. It was before 3?

A. Yes.

Q. Go on.

A. We put him in this hole and left him there,
one watching him at the time and looking after him, 857
and in the meantime I went next door to the butcher
who lived there, and knowing of a veterinary surgeon
that they had, asked him who he was, thinking he
could do some good for him, but was unsuccessful in
finding him, and we waited until, I suppose, 10 o'clock
that night—that is, we left him lying there all that
time, and the first time we noticed anything at all
about him—Mrs. Tupper did herself—I wasn't there
at the time—she noticed a twitching of his hindquarters— 858

Q. What did you first notice?

A. I noticed that his hindquarters—

Q. (Interrupting.) She called you?

A. Yes, sir.

Q. Then you went right out?

A. I noticed that his head and eyes moved, and I
called him, but he did not get up at all. I stooped
down, and I imagined that the dog recognized me. We
spoke to him, and I gave him some alcohol and at- 859
tempted to give him some milk and brandy. He
would not eat. We rubbed him with alcohol and left
him there until 1 or 2 o'clock.

Q. In the morning?

A. Yes; took him upstairs, put him in the room where we slept, and laid him on a cloth. We then got pretty tired out and went to bed; he laid there all the next day; and on the night of the next day, after supper, about half-past 7 or 8 o'clock, we suc-

860 ceeded in getting him up on his front paws, but after we succeeded in getting him up on his hind paws—he would raise considerably—and lay right down, and he stayed up there in that condition until I went to Dr. Glover and told him of that. No, I am mistaken about — it was not Dr. Glover, it was a druggist; I went to him and he gave me some salve. He stayed there until Sunday afternoon. That was my first attempt to carry him downstairs. I found he would fall down. He has been improving ever since. The only 861 thing the matter with the dog now is, I should judge, his burns.

By the Referee:

Q. The burn on the left hand side of his snout?

A. Yes.

Q. When was it you noticed this twitching?

A. I did not see any twitching at all.

862 Q. When you went downstairs, when your wife called you?

A. It was about 12 o'clock.

Q. The same day he was hurt?

A. Yes, sir.

By Mr. Cockran:

Q. Did the dog have on a collar?

A. The dog, at the time he was struck?

Q. Yes.

863 A. Yes, sir, he did.

Cross-examination by Mr. Poste:

Q. What kind of a wire was it that he lay on?

A. A very rusty-looking wire.

Q. Covered?

A. No, sir, not covered at all.

Q. A telegraph wire?

A. Yes, they had cut a wire from the two extreme poles, and let it hang over a wire that furnished a jewelry store. 864

Q. How do you know that? I did not ask you that. I move to strike that out. I ask you what kind of a wire the dog lay on? You said it was a telegraph wire?

A. Yes, sir.

Q. What time of the afternoon was it?

A. Between 2 and 3 o'clock, sir. 865

Q. And what time was it that you found him reviving?

A. About—I suppose between 12 and half-past one; somewhere in that neighborhood—I won't be positive. It was after twelve o'clock. We closed the restaurant at 10 o'clock, and it was some time after we closed.

Q. Your wife noticed the reviving symptoms before you did?

A. Yes, sir. 866

Q. Ten o'clock?

A. I would not like to be positive of that.

Q. Is it not a fact that the dog indicated that he was alive at an earlier hour than that—earlier than 10 o'clock? Did you notice the movements of the dog within an hour after his injury?

A. I did not. The dog was apparently dead, to me, up to that time.

Q. Ten o'clock? 867

A. Yes, sir.

Q. How old did you say the dog was?

A. Two years and a half old; about that.

Q. Have you any—can you testify positively as to how long the dog lay on the wire?

A. Only the time that I was there, and stating what time it took me to go from one place to another.

Q. You stated it took you about 10 minutes?

A. Yes, I should judge about that.

868 Q. You think it took about ten minutes to get your coat and hat?

A. I went upstairs to my wife—

Q. Tell us what you did in that period of time?

A. I do not think I am exaggerating when I say that the dog was on the wire 15 minutes. I was asking the foreman what assistance he could offer before I attempted to do anything, and then after turning to the officer, telling him to arrest the man; I then
869 felt satisfied I had my man, and went upstairs, and before going up I stood and called several times before my wife came out and answered. I then went upstairs and was telling her that the dog was dead. I will state, gentlemen, why she felt as bad as she did. I lost a dog a little while ago, a very splendid dog, and, this being the second one, she fell prostrated on the bed, and running over and finding that she was only feeling bad over it I came downstairs and looked for my coat. I went upstairs and hollered to my man,
870 who was on the second floor. I hollered to him and told him to get up and dress as fast as possible, that Dash was dead. When he came down I was on the sidewalk. I did not add this; he went upstairs and got my coat and I put it on.

Q. Was the dog still on the wire?

A. Yes.

Q. How far is it from your store to the station-house?

871 A. I am between Twenty-first and Twenty-second streets, and the station-house is in Twentieth street, between Seventh and Eighth avenues.

Q. How long were you at the station-house?

A. We were there during the examination by the sergeant; I could not tell.

Q. What became of those two linemen?

A. I do not know, sir; I do not know what became of them.

Q. You said they fell?

Q. What time was he exposed to this shock? 856

A. Half-past 2—between half-past 2 and 3 o'clock.

By Mr. Cockran:

Q. It was before 3?

A. Yes.

Q. Go on.

A. We put him in this hole and left him there, one watching him at the time and looking after him, 857 and in the meantime I went next door to the butcher who lived there, and knowing of a veterinary surgeon that they had, asked him who he was, thinking he could do some good for him, but was unsuccessful in finding him, and we waited until, I suppose, 10 o'clock that night—that is, we left him lying there all that time, and the first time we noticed anything at all about him—Mrs. Tupper did herself—I wasn't there at the time—she noticed a twitching of his hindquarters— 858

Q. What did you first notice?

A. I noticed that his hindquarters—

Q. (Interrupting.) She called you?

A. Yes, sir.

Q. Then you went right out?

A. I noticed that his head and eyes moved, and I called him, but he did not get up at all. I stooped down, and I imagined that the dog recognized me. We spoke to him, and I gave him some alcohol and at- 859 tempted to give him some milk and brandy. He would not eat. We rubbed him with alcohol and left him there until 1 or 2 o'clock.

Q. In the morning?

A. Yes; took him upstairs, put him in the room where we slept, and laid him on a cloth. We then got pretty tired out and went to bed; he laid there all the next day; and on the night of the next day, after supper, about half-past 7 or 8 o'clock, we suc-

860 ceeded in getting him up on his front paws, but after we succeeded in getting him up on his hind paws—he would raise considerably—and lay right down, and he stayed up there in that condition until I went to Dr. Glover and told him of that. No, I am mistaken about — it was not Dr. Glover, it was a druggist; I went to him and he gave me some salve. He stayed there until Sunday afternoon. That was my first attempt to carry him downstairs. I found he would fall down. 861 He has been improving ever since. The only thing the matter with the dog now is, I should judge, his burns.

By the Referee:

Q. The burn on the left hand side of his snout?
A. Yes.
Q. When was it you noticed this twitching?
A. I did not see any twitching at all.
862 Q. When you went downstairs, when your wife called you?
A. It was about 12 o'clock.
Q. The same day he was hurt?
A. Yes, sir.

By Mr. Cockran:

Q. Did the dog have on a collar?
A. The dog, at the time he was struck?
Q. Yes.
863 A. Yes, sir, he did.

Cross-examination by Mr. Poste:

Q. What kind of a wire was it that he lay on?
A. A very rusty-looking wire.
Q. Covered?
A. No, sir, not covered at all.
Q. A telegraph wire?

A. They fell from Twenty-second street. One was from Twenty-first and two from Twenty-second street. 872

Q. Do you mean they were standing on the ground and fell down, or fell from the pole?

A. No, they were on the ground; two were winding the wire and the other was holding the slack of the wire, I suppose, and lapping it up across the wire—over the wire—that supplies this jeweler's shop.

Q. I simply asked you if they were standing on the ground? 873

A. Yes, sir.

Q. This telegraph wire, for how long a distance did it lie on the ground? How long was that portion of it that was on the ground?

A. The time they got—

Q. How long was the portion of the telegraph wire that lay on the ground?

The Referee:

In length? 874

Q. (Continuing.) Give us your best recollection; was it ten feet long?

A. The distance from the pole where the man was standing to the wire?

Q. I want to know how much of the wire was on the ground; was it ten feet?

A. I have not the slightest idea whether it was two feet, or ten feet, or one foot; I have not the slightest idea of how much of the wire was on the ground. 875

Q. Did you see a part of that telegraph wire on each side of the dog?

A. No, sir; only one side of the wire. He had one end of the wire on this machine that they were using; they had a portion of it; the other end of the wire laid on the ground.

Q. Then, from the place where they were winding it up to where the dog lay none of it lay on the ground?

876 A. No, sir.

Q. But, beyond the dog there was a portion laying on the ground?

A. Yes, sir.

Q. How long was that portion?

A. From the pole to the ground.

Q. Yes.

A. It extended very nearly from the front of my restaurant to Twenty-second street; I would not say positively, but I should judge from the top of the pole to 877 where they had it it must be somewhere about fifty feet.

Q. Fifty?

A. I should think so; I won't say positively.

Q. And the wire lay under the dog?

A. He fell on the wire.

Q. And then from the pole there was about fifty feet of it which lay on the ground?

A. No, sir, I don't say that: I say from the top of the 878 pole, I should judge, to where the dog lay, there was about fifty feet; I do not know how much wire was on the ground.

Q. How many people were there?

A. I should judge there must have been about 500 people.

Q. Quite a large congregation?

A. There was; I never saw such an excitement in my life before, and did not realize the danger myself.

879 Q. Can you name some of your friends that saw it, individuals living around there?

A. I guess they all saw it.

Q. Give the names of the people that you saw there that witnessed it.

A. I can tell what I heard.

Q. Give us some that you saw yourself; do you know the name of the policeman that you spoke to?

A. No, sir, I do not: I know him very well, though.

Q. Did you know this lineman?

A. No, sir. 880

Q. Cannot you give me the names of the people that lived there in that vicinity that you saw?

A. I do not know that I can. I can tell you those who said they saw it, but giving you the names of those that stood there at the time I cannot.

Q. That is, that you noticed?

A. I cannot say a solitary one that I saw there; I know the foreman was there and at least one of the linemen, but in the excited state I was at the time I 881
cannot really tell who was standing there at that time; a great many said they saw it later.

Q. This matter has appeared in the papers once or twice, has it not?

A. Yes, sir.

Q. When did it first appear in the public prints?

A. The day afterward.

Q. And when do you say this occurred?

A. On the 2d I think it was, and on the 3d it was in the papers. 882

Q. Did you tell the reporters of the various papers at that time that the dog was in a state of insensibility for only about an hour?

A. No, sir, I did not.

Q. You will swear positively to that?

A. Positively.

Re-direct examination by Mr. Cockran: 883

Q. Was not the dog reported dead in all the papers?

A. No, sir; it was not.

Q. In some of them?

A. Yes, it was in several.

Q. In every paper that mentioned it, the dog was dead?

A. Yes, sir; one of the reporters saw the dog.

884 Q. Do you remember the reporter of what paper?

A. He asked me if he could see the dog and I said "Yes."

Q. Wherever it was reported, the dog was reported as dead?

A. Yes, sir; the dog was reported as dead.

Q. You have been asked if you can give the names of the people who saw the accident; you were, I understand, pretty much excited at that time?

A. Most undoubtedly I was, sir.

885 Q. Well, you know there was a large concourse there?

A. Yes.

Q And you have been informed that nearly all the neighbors saw it?

A. Yes.

Q. And that means the neighbors on the block between 21st and 22nd streets?

A. Yes, sir.

886 Q. You have stated that it was a telegraph wire that the dog lay on, Mr. Tupper. Did that telegraph wire cross any other wire?

A. Yes.

Q. What wire?

A. It crossed the wire that furnished the jewelry store on the opposite side of the street with incandescent light.

Q. What kind of a collar did the dog have on?

A. A leather collar next to his neck, and it had my name on.

887 Q. A metal collar over the other?

A. Yes, sir.

Re-cross-examination by Mr. Poste:

Q. Can you tell us about where this telegraph line crossed this electric-light wire?

A. About where?

Q. Yes; what number in the street? 888

A. Between the butcher's next door and the druggist's.

Q. Give us the number?

A. Between 28 and 30.

Q. What is the number?

A. My number is 26, the next is 28 and the next 30.

Q. Give us the whole numbers?

A. 226, 228 and 230.

Q. What street?

A. On Eighth avenue, between 21st and 22nd streets. 889

Q. Can you describe the appearance of the wire over which the telegraph wire hung?

A. Yes, sir.

Q. Describe it.

A. A piece of white wire—they say that it is covered with—

Q. (Interrupting.) Never mind what they say.

A. By saying it is white I thought you would not know. 890

Q. Now give us the name of the jeweller?

A. Brann.

By Mr. Cockran:

Q. You say a white wire. You do not mean to be understood as testifying that it was a piece of white wire. It was a cable?

A. Yes, sir, it was; drawing an old wire over the wire covering—it wore that off, and struck the under wire. 891

Mr. Poste:

Q. Do you say the place the telegraph wire crossed —that there was no wire over it?

A. No, sir, I do not.

Q. That is all you know about it?

A. Yes.

892 ALEXANDER MCADIE; examination resumed:

By Mr. Poste:

Q. Which is the better conductor, wet woollen cloth or dry?

A. I should think wet woollen cloth.

Q. Are you sure about it?

A. I am not sure; no, sir.

Q. You won't swear positively?

893 A. No, sir.

Q. Did you ever attend a post-mortem examination of a human body where the body was dissected?

A. No, sir.

Q. You say you studied physiology in college about two years? How many recitations a week?

A. I have forgotten the number.

Q. Two or three?

A. Yes, probably three.

Q. Forty weeks in the year?

894 A. Yes, sir.

Q. That is all you know about it? That is all the studying you ever did?

A. Oh, no, sir.

Q. You have studied it since?

A. I have always kept up a sort of—

Q. (Interrupting.) My question calls for an answer, yes or no.

895 Mr. Cockran:

Let him finish his answer.

Mr. Poste:

I am willing that he should finish it.

A. I have knocked around medical hospitals and I had a chum who was studying for his degree, and I used to go with him. I have been and seen operations and seen men cut up.

Q. I thought you said you never attended a post-mortem examination? 896

A. No, sir, I never did.

Q. I suppose you never attended an ante-mortem examination where a human body was dissected?

A. No, sir.

Q. Well, tell us what you have seen in that regard in regard to dissection of the human body?

A. I have seen men on the table in the dissecting room. I have been at clinics, as it is called—as the term is used in a hospital. 897

Q. How many times?

A. A number of times.

Q. How many times?

A. I could not say.

Q. Twenty times?

A. I do not know, sir; I have gone for a number of times.

Q. You won't swear you have been twenty times?

A. No, sir; I won't swear. 898

Q. Now, can you tell me the names of any of the nerves of the human body?

A. Yes, sir.

Q. Give us the names of some of them?

A. There is the optic nerve; the pneumogastric nerve—

Q. Where is the pneumogastric nerve?

A. I do not know, sir.

Q. Any other nerve that you can give us the name of? 899

A. I think you might call the—I cannot recollect any of the names.

Q. Do you know the names of the muscles?

A. Yes, sir; I have known the names of a lot.

Q. Give us the names of some of the muscles?

A. I cannot recollect them now.

Q. What are the functions of the spleen?

A. I could not say; I cannot say offhand; I do

900 not speak as a medical man, and I said so at the beginning of my testimony.

Q. Can you describe the process of digestion?

A. I probably could.

Q. Please do so.

A. If you want it: The food goes into the mouth, then it goes through the thorax, then down the œsophagus, then down into the stomach and into the large intestines and out of the rectum—some of it—a
901 part of it.

Q. That is all there is of the process of digestion?

A. Speaking generally; yes, sir.

Mr. Cockran:

Have you finished your answer?

The witness:

Yes, sir. Have I a right to decline to answer some
902 of these questions?

The Referee.

Not such questions as that.

Mr. Cockran:

Q. Describe the chemical process of digestion?

A. I cannot, offhand.

Q. Can you describe the circulation of the blood?

903 A. Not offhand, in this chair; no, sir.

Q. Can you describe how, mechanically, the process of breathing is produced?

A. Not minutely nor offhand, in this chair.

Q. Do you know the rapidity of nerve sensation through the nerves?

A. I don't know it; no, sir—nor anybody else that I know of. I have made experiments—

Q. You have answered my question?

A. I do not know; no, sir.

Q. You know the rapidity of the electrical current? 904

A. Where and when? I object to the questions on the ground of their lack of definiteness.

Mr. Cockran:

I will ask the Referee that when a question is absurd, ridiculous and incomprehensible, or either of them, it is competent for a witness to say so, and not answer them on that ground. 905

Q. I repeat the question, and ask if he can tell me the rapidity of an electric current?

A. I decline to answer, on the ground that I do not understand the question as stated.

Q. Do you say that there is any difference in the rapidity of an electric current passing through an iron conductor and one passing through a copper conductor? Answer the question yes or no?

A. Probably.

Q. You think that there probably is a difference? 906

A. Yes, sir.

Q. You swear that there is a difference?

A. No, sir.

Q. Do you know what is known among electricians as Joule's law of heat?

A. Among electricians?

Q. Yes, sir.

A. Yes, sir.

Q. Give me the formula for it? 907

A. The heating effect—the mechanical work done by a current—

Q. (Interrupting) I am not talking about that.

By the Referee:

I think that he understands the question. Answer the question.

A. Well, to put the law as I know it, it is equal to C square or times multiplied by T, divided by J.

908 Q. What does J always represent?

A. J represents Joule's 1,410; multiplied by 10 would be the fourth power—in absolute units.

Q. That process gives you what? What are the units of heat?

A. Gives the heating effect or mechanical work done by the current. It is a measurement of the electrical energy of the current.

Q. What does the electrical energy consist of?

909 A. Of volts by amperes; that gives you Watts.

Q. What is the law of distribution of electro-motive force in a circuit of varying resistance?

A. I decline to answer, on the ground that I do not understand the question.

Q. What is the law governing the distribution of electro-motive force through a circuit containing different resistances?

A. I cannot answer the question, on the ground that I do not understand it. I do not understand what
910 he means by electro-motive force, in that sense.

Q. You may substitute the term potential for electro-motive force?

A. That is the same thing.

Q. Does it appear to you now?

A. No, sir; I cannot answer that question.

Q. I will illustrate it; we have a circuit; we have a dynamo or a battery with a well-known, perfectly defined electro-motive force. We have a circuit, and
911 in that circuit are parts or objects through which the current passes, of varying resistance—different resistance. Now, what I ask you is to give me the law as to the distribution of electro-motive force through that circuit?

A. I think you want to get Ohm's law.

Q. No, I do not want that.

A. I cannot answer your question.

Q. How is the current distributed through a circuit that contains varying resistances, or different resistances in series?

A. The electro-motive force acts inversely as the resistance. 912

Q. Where you have a circuit that is made up of, or contains, objects of varying and different resistances, is the current uniform throughout the entire circuit or not?

A. Certainly not; it is distributed according to the law which I stated.

Q. You swear the circuit is distributed not uniformly through that circuit? 913

A. I do not; no, sir.

Q. What is your answer to that question?

A. I say that the current is not uniform; it varies inversely as to the resistance.

Q. What do you say as to the electro-motive force distributed through such a circuit from a battery?

A. That is highest at the point in the circuit at which the current begins, if I may put it in that way.

Q. Just state that again?

A. The electro-motive force varies throughout the circuit. 914

Q. Where is it the highest? Where is the electro-motive force strongest in that circuit?

A. In the case of a battery and circuit; that way, it would be, at the positive pole of the battery, the highest electro-motive force. It is the form of potential really which gives us force.

Q. Is the electro-motive force at the point of strongest resistance in the circuit stronger than in any other point in the circuit? 915

A. I do not understand that question.

Q. You cannot answer that question?

A. I cannot.

Q. Is, or is not, the electro-motive force in an electric circuit distributed through that circuit in proportion to the resistance at different parts of the circuit?

A. The electro-motive force is not—

916 Q. (Interrupting.) Answer the question yes or no?

A. I cannot do it; I cannot answer the question.

Q. We have an electro-motive force of one hundred volts; we have a circuit that presents a resistance of five ohms; we put into that circuit a number of lights that present a resistance of 20 ohms, we will say, for illustration. We have another light that presents a resistance of five ohms. Now, there are three different resistances; the resistance of the circuit, one resistance, 917 of 20 ohms, and another resistance at another place of five ohms. How is the electro-motive force distributed through that circuit?

A. Those three resistances in series—one after the other?

Q. No, the 20 ohms resistance—all in one place?

A. Yes, but are the three resistances connected? Are they in what is known technically as series?

Q. Yes, in series; only the resistance of the circuit is not in series, because it is the resistance of the whole 918 circuit before we put in these other objects?

A. The electro-motive force is higher at the points at which the current begins—at the beginning of the circuit. Then it follows throughout the circuit, just as a person going downstairs or going from a level to a higher level, and with each resistance that it meets it is like water falling. It has just so much resistance to overcome, and the potential is lessened just so much. After it passes that resistance, when it passes into the 919 next, it is so much less than it was at the start, but after the last it keeps going down an inclined plane.

Q. I come back now to the question I have asked you before: Taking that circuit which I have described there, I ask you the question and ask you if you can answer it now, as to how the electro-motive force is distributed in that circuit with reference to its different resistances?

A. I think my last answer covers it; I will try to explain.

Q. You can give me no further answer than you have already given? 920

A No, sir.

Q. Now, if a human body, living or dead, as the case may be—we will take a dead body—could you place that in an electric circuit, and the circuit itself, aside from the body, we will say, presents merely a nominal resistance, where is the heat occasioned by that current in the human body? Where is it produced—throughout the body?

921

A. I think not, because the heating effect is dependent upon the conditions of the current's strength, the square of the current and the resistance and the time, so that with varying conditions you would have varying amounts of heat.

Q. Then what you mean to say is, that there are different resistances of the human body, I suppose?

A. Will you state that again?

Q. What you mean is that different portions of the human body resist the current differently from other portions? 922

A. I do not know for a certainty that they do, but I think they do.

Q. What portions of the body do you think would resist the most?

A. What portions I think?

Q. Yes.

A. I should think, perhaps, the greatest resistance might be encountered in passing from one side of the head to another, perhaps. 923

Q. Then you think the skull would present a great deal of resistance?

A. That is my idea.

Q. What do you think about the scalp, or the skin of the body? Do you think that would present much resistance?

A. It might present considerable resistance, and then again the resistance might not be very great; it would depend upon the person and upon the skin.

924 Q. That brings us to another part of the subject. What do you mean by susceptibility?

A. It is a very general term. If you want a general definition—

Q. (Interrupting.) I want to understand what you mean by it?

A. I do not mean anything by it. I have not used the word "susceptibility."

Q. In testifying to Mr. Cockran, have you not

925 spoken about one person being susceptible—more susceptible—than another?

A. That is not susceptibility.

Q. Of course, you would not attempt to say that susceptibility is not derived from that?

A. I would not say, as a scientific man, that a—

Q. (Interrupting.) What do you mean by the term susceptible to electrical influence?

A. I mean that the effect of an electrical current on some people is very different, and very different

926 from what it would be upon another person.

Q. Have you any information, any knowledge, of your own, that sustains such a conclusion?

A. I think I have; yes, sir.

Q. Now, please tell us what it is?

A. I have experimented upon myself and have taken shocks that, with the same machine, I have given to other people, who, if you can judge from the way they behaved, experienced very different sensations.

927 Q. You could only judge by appearances?

A. Certainly.

Q. Now, is that the only knowledge you have?

A. I do not know whether it is or not.

Q. You don't know of anything else?

A. I do not.

Q. Now, these illustrations, were they galvanic; these experiments of this kind to yourself and friends?

A. They have all been given with an ordinary, a little induction coil and a medical coil, a laboratory 928 machine, several of them, and in a number of tests.

Q. That is all you have in the way of information to base your conclusion upon as to the different degrees of susceptibility?

A. No, sir.

Q. What else?

A. I have experimented upon myself with a different kind of electricity. I have insulated myself at the top of the Washington Monument until the 929 potential of my body, as far as I could ascertain it by measurements with the electrometer, was as high as 3,000 volts above the potential of the ground.

Q. Did you have a meter up there—a galvanometer?

A. Not a galvanometer; an electrometer to measure the electro-motive force.

Q. What did you find out?

A. I found out a good many things.

Q, What did you find out? 930

A. I found out that it was possible for a person to be at a potential of 3,000 volts above that of the ground and then to discharge himself into the ground without any serious results to himself.

Q. How did you make the discharge between yourself and the ground in that case?

A. By leaning over and putting my knuckle to the iron framework inside the monument.

Q. What did you experience?

A. Just about the same effects that anyone experi- 931 ences when you insulate them and electrify them with a friction machine.

Q. This was during a thunder storm?

A. Yes, sir.

Q. You absorbed the electricity from the air?

A. I acquired the potential of the air.

Q. The surrounding atmosphere?

A. The same as a collector that I was working with did.

932 Q. Are you a photographer, Mr. McAdie?

A. No, sir; I have made photographs, but I am not a photographer.

Q. Have you ever photographed a lightning flash?

A. Yes. I am an amateur photographer.

Q. Have you ever photographed a lightning flash?

A. No, sir. I never got a good one; I tried to.

Q. Have you photographs of lightning discharges?

A. Yes, those are mine (indicating).

933 Q. Where did you obtain these?

A. Four of those are English photographs and I obtained them from an exhibition of that particular class of photographic work; the exhibition was held in London a year ago; the other two were sent to me by friends.

Q. You do not know anything about these except from hearsay?

A. No, sir; except from hearsay. Some of the parties who took those have described them to me in

934 letters, in correspondence.

Q. Did you testify, in answer to Mr. Cockran, that the first—what did you testify in regard to the physical effects when speaking of lightning—what would be the first effect upon a body struck by lightning—a human being?

A. I could not say definitely what the first effect would be in any case. Speaking generally, I should think unconsciousness was the first effect—first general

935 effect.

Q. Paralysis, possibly.

A. There must be, to a certain extent, paralysis of the nerves, I think, before unconsciousness could ensue.

Re-direct examination by Mr. Cockran:

Q. Mr. McAdie, with regard to these questions of susceptibility—we will use the term—it has been invented somewhat here; you know what we mean by that?

A. Yes, sir; generally. 936

Q. Now, in the conclusion that you have reached about that, have you got any other cases in your own experience—have you read about them?

A. Yes, sir.

Q. And when you speak of it you speak from what you have read? For instance, this instance of a woman being assumed to be killed and being restored?

A. Yes, sir.

Q. And then you know there are cases where they have been killed absolutely? 937

A. Yes, sir.

Q. And you know some people have been killed by contact with electric wires, while others have not?

A. Yes, sir; I do.

Q. Now, there were several questions put to you by Mr. Poste you said you could not answer; can you tell us why you could not answer?

A. Because of a lack of vagueness in the use of certain terms—electrical terms. 938

Q. You have discovered something, then: that there was a lack of vagueness?

A. I mean a lack of definiteness as to what way he was using the term.

Q. Now, he put such a question as this to you—I took it down: What is the law governing the electromotive force through conductors of varying resistances? Did you understand that question?

A. I should answer it by giving Ohm's law. 939

Q. That is, Ohm's law of resistance?

A. Ohm's law of currents.

Q. He has asked you if you knew the rapidity of nerve sensations, and I understood you to say that you did not know and you did not think anybody else knew?

A. I would not say for a certainty that I knew. I know of experiments made upon the route of sensations, and I have seen experiments made as to the

940 time which it would take for a person—for the knowledge to travel—from the time a person saw a common flash before his eye until the time he gave indication that he was aware of that. I have made many experiments of that description.

Q. But you do not think there is any definite law on that subject?

A. No, sir; the subject has not been worked up to any great extent up to that point. No man can explain that.

941 Q. You were also asked if you knew the rapidity of an electric current, and you said you did not. Does that convey any meaning to you?

A. Not as the term was used. General rapidity—velocity—of the electricity is given as akin to that of lightning, or something under 190,000 miles per second—about 188,000 is probably the latest determination.

Q. And your answer was based upon the fact that

942 Mr. Poste's question was not couched in the ordinary scientific way?

A. Was not clear to my mind.

Q. Now, you have been asked as to the conductivity of a human nerve and a piece of copper. Is that an intelligible question?

A. It is intelligible if all the conditions are given.

Q. But in the absence of the conditions?

A. It is not intelligible.

943 Q. The conductivity of either might depend upon temperature and other circumstances?

A. Yes, sir.

Q. Now, you say that you have never read any books on the effect of lightning on the human system. Have you read any discussions of it not in book form?

A. Yes, sir.

Q. Do you mean by your answer to convey anything more than that you had not read any separate work on that subject?

A. That is all I meant by my answer. 944

Q. Have you read articles, discussions and contributions to various publications?

A. Yes, sir; and hunted them up wherever I could get a trace bearing on that.

Q. Mr. McAdie, you were asked, or, at least, several times during your examination reference was made to an experiment that you made by insulating yourself on top of the Washington Monument. Would you mind describing that to us? 945

A. I worked there measuring the potential of the air for a space of, may be, six or eight months. These times when I made experiments during thunderstorms — understand, I made experiments right along; it was my daily work.

Q. For whom were you working, then?

A. United States Signal Service.

Q. Will you now describe exactly what you did— this time when you took 3,000 volts?

A. I had quite an amount of apparatus up there; 946
I had a large water-dropper—William Thompson's device for getting the electricity of the air. This is insulated on Mascart insulators. It is connected by a fine wire with an electro-meter. The particular electro-meter was my own production—Sir William Thompson's quadrant electro-meter. On one day that I have in mind the indications, as given by the electrometer needle, were from a small number of volts—150, may be—to 3,000 and over. When it gets as high as 947
3,000 there is what is called a sparking in the electrometer. In other words, it gets almost beyond our control with a particular instrument; a little spark will pass from the wire to the instrument holding it to the box. You cannot work with the instrument then. It gets beyond your control. I disconnected the wire connected with the electro-meter and then experimented upon myself.

Q. How did you experiment? What did you do?

948 A. I insulated myself.

Q. How did you insulate yourself?

A. I had brought up there a very thick Navajo, I think, Indian blanket, which I had read some few weeks ago about—which I had read an account of, a Dr. Schafer—he had electrified himself by standing upon it. So I obtained a loan of this blanket and took it up there, and when the instrument gave out, when I had to disconnect it—

949 Q. It showing 3,000 volts and over?

A. Yes, sir; that is the limit; I could measure as high as that, probably higher, and all its varying conditions.

Q. You stood on the blanket. What condition were you in?

A. Then I was insulated.

Q. And then you took?

A. Folded the blanket in a number of folds.

Q. How did you get the electricity?

950 A. I put my hand over and touched the collector, so I acquired the same potential which the collector had, and which a few moments previously had acquired, 3,000 volts.

Q. Now, at that time, was it always supposed that that would be fatal?

A. Yes, there is a great element of risk connected with the experiment.

Q. When you got yourself charged with the potential of the Thompson collector, which registered over 951 3,000 volts, then, I understood you to say, you discharged that into the ground?

A. Yes, sir. After holding my hand on the collector for some time, if I recollect right, at one time I saw my hand on the collector, and put my other knuckle over to the iron frame-work.

Q. Iron frame-work of the monument?

A. Yes, sir; the affair I had to step upon.

Q. What electrical condition would that bring to you?

A. There was a slight spark from my knuckle to 952
the ground.

Q. Did it give you a shock?

A. That is just one point. I probably should not notice a shock so much as another person might, because I have noticed the manifestations of it on myself, such as my hair getting up.

Q. Did your hair stand on end?

A. It raised just a little.

Q. And any other manifestations? 953

A. There is manifestation enough when the spark passes from you to the ground without you discharge it; the stroke probably—we have measured sparks there that equal five-sixteenths.

Q. Five-sixteenths of an inch?

A. Yes.

Q. Would that have any power—show any way what the ordinary effect of a current on a human being would be?

A. I do not know if it would or not. It would 954
show one thing: that the mere question of voltage—that the mere fact that there is a voltage of a thousand volts in any apparatus for killing a man, indicates nothing with regard to its deadly effect.

Q. That you base on the fact that you took 3,000?

A. That it is perfectly possible, and many other people have gotten a potential as high as 3,000 volts above the ground, I believe, by holding the two terminals of a friction machine, a very high potential in 955
a certain kind of electricity.

Q. You have mentioned Sir William Thompson. Is he an electrician?

A. Yes, sir; he is probably the greatest authority on electrical subjects and electrical magnetism that is alive.

Re-cross-examination by Mr. Poste:

Q. Could you make an estimate as to the intensity of that spark?

956 A. As to the intensity of that spark?

Q. When the current passed from you; as to the intensity of it?

A. As to the number of amperes?

Q. Yes.

A. No, sir.

Q. It was infinitely small?

A. No, sir.

Q. Would not that be applied to it?

957 A. No, sir.

Q. Can you make an estimate?

A. I should say it was some—

Q. (Interrupting.) Can you make an estimate as to the number of amperes?

A. No, sir; I can make an estimate that it was less than one ampere.

Q. That is all you can say?

A. Yes, sir.

Adjourned to Tuesday, July 16th, 1889, at 10.30 A. M. 958

NEW YORK, July 16th, 1889.

Met pursuant to adjournment:

PRESENT—Counsel as before.

By agreement the people call, out of order, as a witness, Dr. Frederick Peterson. 959

FREDERICK PETERSON, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

Q. What is your full name, doctor?

A. Frederick Peterson.

Q. You are a physician by profession?

A. Yes, sir. 960

Q. How long have you been practicing as such?

A. Ten years.

Q. Where have you been practicing?

A. I have been practicing for five years in Buffalo, N. Y.; for three years in the lunatic asylum at Poughkeepsie, N. Y., and for the past two years in New York City.

Q. Where were you educated?

A. I was educated—I graduated at the Buffalo 961 University, and have spent two years abroad.

Q. What were you engaged in while you were abroad?

A. Study of mental and nervous diseases and medical electricity.

Q. At what institution?

A. The university at Vienna, the university at Strassburg, and the University of Leipsic; also in Paris and London.

Q. Have you devoted yourself to any special field 962 of medicine and surgery?

A. Yes, sir; to the practice of the specialty of nervous and mental diseases.

Q. What attention have you devoted in the practice of your profession to the use of electricity as a medical or surgical instrument?

A. Use it daily.

Q. For how long a period have you had that experience? 963

A. For five years—about.

Q. Can you give me an average general statement as to an average number of applications of electricity, or use of electricity for medicine and surgery, that you make per day?

A. Averages about thirty per day in the hospitals and dispensaries that I am connected with—thirty cases.

Q. Were you associated with Mr. Harold P. Brown

964 in certain experiments for the ascertaining of the effect of currents of electricity upon various animals?

A. Yes, sir.

Q. When was that?

A. That was the summer of 1888—last summer—last fall.

Q. Where were those experiments made?

A. Most all of them were made at the Edison laboratory; some at Columbia College, in this city.

965

By the Referee:

Q. Edison laboratory at Orange?

A. Orange, N. J.

By Mr. Poste:

Q. Upon how many animals were experiments made?

A. All of the experiments made at the Edison 966 laboratory, I think, were on twenty-four dogs, if I remember rightly, and on several calves and three horses; I was not present at all of those experiments, however.

Q. What current was used in—what kind of current was used in your experiments at the Edison laboratory?

A. There were two kinds, the alternating and continuous currents.

967 Q. What kind of currents were used in the experiments at Columbia College?

A. Both kinds.

Q. For how many days did you experiment at Columbia College?

A. Two different days.

Q. Do you remember an occasion when the members of the Board of Electrical Control were present?

A. I think there were some present the first day.

Q. Do you remember how many dogs were experimented upon on that occasion?

A. There was one. 968

Q. Did you make certain dissections of certain of these animals?

A. Four or five of them.

Q. Now, doctor, won't you state your opinion as to the result of your experiments, practically—as to the relative vitality of man and animal?

A. I think that, as regards ordinary vivisection, that the animals can endure a great deal more than a human being. 969

Q. Have you had experience in vivisection?

A. Yes, sir.

Q. For how long a time?

A. Extending over two years—various periods—

Q. And you think that so far as vivisection is concerned that animals can endure more than a man would be likely to endure?

A. Yes, sir; serious operations on the brain, for instance, or upon the intestinal canal, that a man would be in danger of dying from, a dog will endure 970 without much danger.

Q. What is regarded by the ablest scientific men to be the velocity of nerve sensations; can you state?

A. About ninety feet per second.

Q. What is the velocity of the electric current?

A. I do not know; I do not know that it has ever been computed.

Q. Is it smaller or greater than the velocity of nerve sensations? 971

A. Infinitely greater.

Q. Does the velocity of the electric current vary in different conductors; that is, conductors having a higher or lower degree of resistance?

A. It varies with the resistance—the quantity passing, as I understand it.

Q. The quantity passing?

A. Yes.

Q. But I mean the velocity of the current itself?

972 A. I think not.

Q. How is that?

A. I think not.

Q. Now, doctor, what is your opinion upon this question, as the result of your experience, experiments, reading, observation, etc. Can a current of—can an electrical current be produced by artificial means and applied to the human body in such a manner as to produce death in every case?

973 A. I think so.

Q. State your opinion as to this question. Can an electrical current be produced by artificial means and applied to the human body in such a manner as to produce death practically, instantly?

A. Yes, sir.

Q. Can an electrical current be produced by artificial means and applied to the human body in such a manner as to produce instant death, without pain?

A. Yes, sir.

974 Q. In applying such a current to a human body, is it your opinion that the electrodes can be so arranged that no burning effect would be produced?

A. Yes, sir.

Q. If such a current were applied to a human body, say by the application of electrodes to the head and feet, how in your opinion would that current be diffused through the body?

A. Throughout all the tissues inside of the skin—
975 throughout the whole body.

Q. What is your opinion as to this question, as the result of your studies, experience, experiments and observations? Is the alternating current, using a certain voltage and intensity of electrical energy, more or less dangerous than a continuous current of the same voltage and energy?

A. More dangerous.

Cross-examination by Mr. Hatch: 976

Q. Doctor, is there any certainty that the current of electricity that is passed through the body in that way—the way it is proposed to pass it through in this case—is there any certainty that that current will take a direction that would be fatal to the individual?

A. I think so; yes, sir.

Q. Now, isn't it true, doctor, that the current may take a direction on the surface of the person without striking a vital part? 977

A. Not if the skin is well moistened: it is bound to go through and diffuse through the whole body.

Q. Has there ever been a case where a man has been struck by lightning, or a current of electricity passed through his body, where it has not reached a vital portion of the body?

A. There have been many cases that have received partial strokes of lightning that have not been killed —been endured. 978

Q. You could trace that on the outside of the body, couldn't you?

A. Very often, sir.

Q. So that the stroke of lightning is not necessarily fatal to a person?

A. It depends upon the quantity that they received.

Q. It is not necessarily fatal—a stroke of lightning?

A. If you get it, I should think it was absolutely fatal. 979

Q. No matter what you think—I say a stroke of lightning, to your knowledge, is not always fatal to a human being?

A. Yes, that is true.

Q. Don't you know, doctor, as a matter of fact, that the stroke of lightning is more fatal to animals than it is to human beings?

A. I do not know that; no, sir, for a fact.

980 Q. Don't you know that lightning striking a flock of sheep, for instance, may kill a large number of them? Do you know that to be a fact?

A. I have heard that said.

Q. It is usually very fatal, is it not, among that class of animals?

A. I do not know.

Q. Don't you know that where it strikes among a party of men that it very seldom kills more than one or two? 981

A. I know as a rule that it kills about that—about a third escape—of human beings that are struck by lightning.

Q. You think that is true, doctor?

A. Yes, sir.

Q. Now, I ask you if you don't know as a matter of fact that where there are thirty men, for instance, standing together, and a stroke of lightning strikes among them, that not more than two out of the thirty are affected fatally by it? 982

A. I do not know that; it might be the fact, but I have never met with any such circumstances.

Q. Now, doctor, is there any more certainty of the direction that manufactured electricity will take through the system of a person than the direction that a stroke of lightning will take?

A. Yes, sir; I think there is a great deal more certainty.

983 Q. More certainty about it?

A. Yes, sir.

Q. And then you say that you can direct the course of an electric current through the body?

A. Yes, sir.

Q. Absolutely certain about that?

A. Yes, sir.

Q. Have you ever seen a person that was struck by electricity, that received a shock of electricity?

A. I have given shocks of electricity myself to people very often.

Q. How large—how much? 984

A. About 25 or 30 milli-amperes.

Q. How many volts?

A. Voltage of 50 to 75.

Q. Have you ever seen a man that had a shock of electricity that died from its effects?

A. Not with the ordinary medical application.

Q. Have you ever known of a man that has been killed—any case where the effect of an electric current has been fatal? 985

A. I have read of a great many cases.

Q. Have you ever known one in your own experience?

A. No, sir.

Q. Is it possible for you to tell with certainty, doctor, what the effect of a thousand volts of electricity would be upon a person?

A. I think it is.

Q. You think it is absolutely certain?

A. Yes. 986

Q. And you base that upon the fact of your experiments with animals?

A. Yes, sir.

Q. I do not know but I have asked you this question, but I will ask you again. Don't you know that animals are more susceptible to electricity, and their resistance is less, than a human being?

A. I do not know that; I think their resistance is considerably more, on account of their skin and hair. 987

Q. You have never known of a man that had a thousand volts of electricity?

A. No, sir.

Q. So that you cannot tell what the effect of that would be upon him?

A. I only judge.

Q. It is only just your belief—what you believe?

A. Yes.

988 By the Referee:

Q. You use the term milli-amperes. What is the difference between that, if there is any, and the term that has been used here, simply amperes?

A. It is a fraction of an ampere.

Q. Why do you use that medical expression, milli-amperes, rather than amperes?

A. We use such small portions in medical electricity—we use fractions of an ampere—never use as much as an ampere. 989

By Mr. Hatch:

Q. Doctor, in your experience as a physician, did you ever use the alternating current?

A. Yes, sir.

Q. You have applied that to people, have you?

A. Yes, sir.

Q. What is the difference of the effect that you observed? 990

A. It is about twice as strong as the continuous current.

Q. So far as medical science has been concerned, what is the result upon patients?

A. It makes them, with our mild applications of electricity—makes them start—jump, as a foretic current would.

Q. What is the medicinal effect of it?

991 A. It is a stronger stimulant.

Q. Does it have a more satisfactory effect than the continuous current?

A. For instance, if we galvanize a muscle to make it contract—exercise it—a continuous current by interrupting it will stimulate that muscle and make it contract to a certain amount, while the alternating current will throw it up and make it a great deal stronger—exercise the muscle a great deal more; but they are painful and are rarely used. It is never used in applications to the head, for instance, because it 992 would produce dizziness and nausea.

Q. Now, doctor, you were with Mr. Brown at Edison's laboratory, were you not?

A. Yes, sir.

Q. How long after the application of the electricity that proved fatal to the dogs did you make a post-mortem examination?

A. Within a few minutes on three or four of the dogs; I think there were four of them that I made examinations of. 993

Q. The dogs were dead, were they?

A. They were dead, yes, to all appearances.

Q. How did you determine that?

A. They had ceased to breathe.

Q. By the way, the ceasing to breathe, doctor; is that a certain indication of death?

A. If it continues; yes, sir.

Q. Certainly, I suppose if it continues a week, there would probably be no doubt about it? 994

A. But that is not the only sign of death.

Q. That isn't the fact then—when an animal does not breathe—that is not a certain sign that his vitality or life has gone from him, is it?

A. That depends upon the length of time.

Q. That isn't a certain sign—

A. No, sir; not momentary.

Q. Now, what else did you notice about the dog?

A. The left ventricle had ceased to beat, and the heart, which sends the blood through. 995

Q. Now, let me ask you right there: Isn't it a fact that in cases where there is no perceptible beating of the heart and where a person is to all intents and appearances dead, that they lie in that condition for a long period of time and finally revive?

A. I have read of such cases; I do not know of any personally.

Q. You know there are certain fits that a person

996 will have—epileptic fits, or something of that kind, where they will lay for a long period of time without any perceptible life about them; that is true, isn't it?

A. I do not know of any scientific record of any such case as that, and I do not believe, unless I see a case myself, that there is any sign of life.

Q. You never saw a case of suspended animation, then, that continued for one, two, three or four days more?

997 A. No, sir; I never did.

Q. Did you ever read of any in any of your studies?

A. I have read of cases of catalepsy continuing several hours, but they were not scientific articles, and so I don't believe them.

Q. So that you don't believe them?

A. No, sir.

Q. And you have never come across anything in your experience of that character?

998 A. No, sir.

Q. Now, you say that the heart had ceased to beat in this animal?

A. That is, the left half of it.

Q. The left half of it?

A. Yes, sir.

Q. Was the right half of it still beating?

A. The right auricle was still beating.

Q. Proceed.

999 A. And it beat for some minutes after the post-mortem examination; in one case it beat for thirty-six minutes.

Q. After you had cut the dog open?

A. Yes.

Q. You considered the dog dead, didn't you, completely, after you cut him open?

A. Certainly.

Q. Although you cut him open, for thirty-six minutes his heart beat?

A. Yes, I think the dog was dead, because that is not an uncommon thing. 1000

Q. So, if you cut a man, or human being, open, and found his heart beating, you would continue the examination, regardless of the fact that his heart was beating?

A. Yes, if I thought he was dead.

Q. And his heart could be beating, and he be dead?

A. Yes, I think so. 1001

Q. Have you heard of this case—the case of the dog Dash?

A. No, sir, I have not.

Q. That fell on a telegraph wire and lay there ten minutes, was taken off apparently dead, and to all intents, so far as any one could determine, the dog was dead, until 12 o'clock that night, and this happened between two and three in the daytime. You didn't hear of that case?

A. No, sir, I did not. 1002

Q. And they put him in the ground and he revived and was in here yesterday a very healthy dog, with the marks of the wire on him. That is a case you haven't heard of?

A. No, sir, I haven't heard of it.

Q. Now, may it not have been a fact that, had you taken these animals that you describe and laid them in the ground the way this dog was laid, that they might have revived? 1003

A. I do not think so; no, sir.

Q. You never have tried any experiments of that kind?

A. No, sir.

Q. So, as matter of fact, you don't know but what the animation was merely suspended—the life was merely suspended in these dogs, and that the proper treatment would have revived them?

A. I think they were dead, beyond a doubt.

1004 Q. So you say that no treatment would have revived those dogs?

A. I think so.

Q. Now, doctor, is it usual for you to make dissections where there is any beating of the heart?

A. Animals?

Q. Yes, in animals.

A. I have very frequently; yes, sir.

Q. And were they alive at the time?

1005 A. They were dead.

Q. What causes the heart to beat after they are dead?

A. It is the nervous system—and the nervous ganglia which are in the heart itself.

Q. How long would it take, doctor, for that to stop?

A. I have known it in some of the lower animals, like turtles and frogs, to beat after being cut out of the body—to beat for ten days, and in rabbits, for instance,
1006 sometimes for eleven to thirty-six hours, and in dogs for several hours, after being cut out of the body.

Q. And yet you say, doctor, that it would not be possible, after this shock by electricity that you gave to these animals, that it wouldn't have been possible for them to have revived, even though the heart was in the condition you have stated?

A. No, sir; I do not think so.

Q. You didn't try these experiments with a view,
1007 did you, doctor, to see if these animals would come to life again?

A. No, sir; I tried experiments for the purpose of observing the pathological changes due to electricity.

Q. And it didn't occur to you that possibly the electrical current might have merely suspended animation and these parties be brought out of their—the dogs brought out of the condition that they were in; that didn't occur to you to try that experiment with it?

A. No, sir; it did not.

By the Referee: 1008

Q. Do you mean to be understood as testifying that in these cases you have specified that the whole heart beats, or just the right auricle?

A. Just the right auricle.

Q. Doctor, what did you do after you dissected, after you cut the dogs open?

A. I examined the viscera and the muscles and the nervous system, and took out specimens for examination by the microscope. 1009

Q. Examined the tissues to see what effect the electricity had upon them?

A. Yes, sir.

Q. What effect did you observe?

A. I observed an unusual fluidity of the blood and dark color of the blood, and that is about all. In one case I found that the capillary vessels were broken in some of them; that was all.

Q. Did you attribute that to the effect of the electricity? 1010

A. Yes, sir.

Q. May it not have been some other cause?

A. No, I think not; not at all.

Q. Why do you say that?

A. Because I did not know of any other cause that would produce it, unless it is some expansive power passing through the nerve.

Q. Might not the dog have been injured in some way to have produced a condition of things such as that? 1011

A. No, sir.

Q. Perfectly healthy dog?

A. Yes, sir.

Q. You examined him before?

A. Yes, sir.

Q. Could you tell the internal condition of the dog when he was alive?

A. I suppose he was healthy in that way.

1012 Q. Then it was merely a supposition on your part that the dog was healthy?

A. Yes, sir.

Q. And the effects that you observed without any knowledge as to the internal condition of the dog—the effects that you observed—you attributed to the force of electricity?

A. Certainly I did.

Q. Do you know how much electricity was used on 1013 these dogs?

A. Yes, sir, they are on record in the experiments that are here.

Q. Did you measure the electrical force yourself?

A. No, sir; I did not.

Q. So you know nothing about it only what you heard?

A. Only according to Mr. Kennelly's statement; Mr. Kennelly measured the electrical force.

Q. Now, doctor, did you notice the appearance of 1014 these dogs when they were receiving the discharge of electricity?

A. Yes, sir.

Q. Did they appear to suffer any?

A. No, sir.

Q. How was it down at Columbia College?

A. Those were doses of electricity that weren't fatal; they suffered from the effect of it.

Q. They suffered very much, didn't they?

1015 A. I think they seemed to suffer from the pain of the shock; yes, sir.

Q. Didn't you notice the same up at Mr. Edison's?

A. Not where there were fatal quantities of electricity used.

Q. Did you observe it where fatal quantities were not used?

A. Where there were small quantities used of electricity there would be pain; yes.

Q. And at Columbia College you noticed, didn't

you, doctor, that some had to go away, that they 1016
couldn't stand the exhibitions that the animals made of the pain?

A. I didn't notice that principally—particularly.

Q. Now you say, doctor, that you were there when the Board of Electrical Control were at Columbia College the first day?

A. I think so.

Q. Are you sure of that?

A. I was told so; I don't know any of them, any of 1017
the members.

Q. You were simply told?

A. Yes.

Q. So that you don't know whether it was the second day or the first day?

A. No; I was pretty sure.

Q. You don't know the second day?

A. No.

Q. There were more dogs killed the second day
than there were the first? 1018

A. Yes.

Q. That first day that you killed that dog he howled considerable, didn't he—as though he were in a great deal of pain?

A. Yes, sir; showed he had pain.

Q. What kind of a current was used? Do you remember?

A. I think there were two kinds of current used.

Q. Do you know which one was fatal to him? 1019

A. The alternating current was the fatal current.

Q. If you are not sure what kinds of current were used there, how are you able to state?

A. I think the continuous current had also been given first in that case.

Q. Do you know whether, as matter of fact, it was the alternating or continuous current that killed him?

A. I am sure it was the alternating.

Q. What makes you sure that it was the alternating?

1020 A. I remember that.

Q. Did you apply it?

A. No, sir.

Q. Did you handle the apparatus?

A. No, sir.

Q. Then how do you know what current killed him?

A. I know it was a scientific experiment, and the man with whom I was associated was a scientific man.

1021 Q. You do not know only what you heard there—what you were told?

A. That is all, as regards that part.

Q. By an examination of the current you couldn't tell whether it was the alternating or continuous current that killed the dog, could you?

A. I didn't know about it, because I didn't make any examination of the current, but I know that Mr. Wheeler was there, the expert of the Board of Electrical Control, and was taking the measurements and
1022 inspecting the kinds of currents.

Q. You do not know what current. What I want is this: That you don't know what current killed the dog?

A. I know it only on the authority of two or three others.

Q. You do not know it, then?

A. As much as I know anything that I take from what is said by anybody.

1023 Q. That is from hearsay?

A. Yes, sir.

Q. Somebody told you it was the alternating current?

A. Yes.

Q. But you didn't examine to ascertain for yourself whether it was?

A. No, sir.

Q. Now, doctor, what direction usually does a current of electricity take—what is the law in relation to it?

A. Direction of the— 1024

Q. Through the human system, for instance.

A. Through the human body?

Q. Yes.

A. The direction of least resistance.

Q. Now, suppose that the least resistance upon a human being was on the surface of the skin, wouldn't the electricity, the current of electricity, take that course?

A. If that were the direction of the least resistance, certainly. 1025

Q. You say there at Columbia College, doctor, there were two currents applied to that dog; that first current that was applied to him was not sufficient to kill him, was it?

A. No.

Q. That caused him to make a great deal of noise, as though he were in agony?

A. Some of the dogs did; I don't remember exactly about that. 1026

Q. Do you know how many volts of the continuous current were applied?

A. I have forgotten now; I have a record here, if I can refer to it.

Q. Never mind that; you don't remember?

A. No, sir, I do not remember.

Q. Then the current that was fatal to him was turned on?

A. Yes, sir. 1027

Q. And you don't know how many volts of that was applied?

A. No, sir; I have forgotten.

Q. About how long was the continuous current applied to the animal?

A. That I do not remember.

Q. Do you know how long the alternating current was applied to the animal before death ensued?

A. No, sir; I do not.

1028 Q. Any appreciable time?

A. I think so; I presume so; I think two or three seconds, but I do not remember the exact figures.

Q. Did you measure the resistance of these animals?

A. No, sir; I did not.

Q. With the Wheatstone bridge?

A. No, sir; I did not.

Q. Do you know the use of that instrument?

A. No, sir; I have never used it. We do not use
1029 it in medical electricity; we use ordinary resistance coils—resistance box.

Q. Is there any way of getting at the true resistance of a human being by the use of any instrument that you know of?

A. It is variable.

Q. No. Is there any way of ascertaining the true resistance accurately?

A. Yes, sir; I think there is, at any given moment; you can measure the resistance accurately at that
1030 time.

Q. Now, suppose the Wheatstone bridge would show a resistance of 1,360 ohms, and it would be applied about five minutes afterwards and show a resistance of 1,800 ohms, which would you say was the true resistance of the individual?

A. I think probably the first one is more correct, because I do not think it would vary upward at all; it would vary downward—be more apt to.

1031 Q. Would you say that a measurement of that kind would determine conclusively the resistance of a person?

A. At that time, yes, sir; it undoubtedly does, for the moment.

Q. Now, doctor, you do not know anything about the Wheatstone bridge?

A. No, sir.

Q. And you are speaking about another instrument?

A. Yes, sir—speaking about our ordinary medical 1032 instrument.

Q. Does that instrument vary?

A. Yes, sir; resistance is always variable, and, of course, instruments which measure it accurately must vary in the resistance.

Q. Now, as matter of fact, you take the resistance of a man and then sit him on the chair to give him the fatal shock; suppose that five or ten minutes had elapsed between the time that you took his resistance 1033 to the time of sitting him in the chair, could you tell by the resistance that you had taken what his true resistance was as he was there in the chair?

A. I think that if the electrodes are accurately applied—

Q. No, no. Could you tell? I ask you if you can tell accurately the resistance of the man sitting in the chair, where his resistance has been taken five or ten minutes before?

A. I think that you cannot tell the exact number; 1034 no, sir.

Q. That is all?

A. But you can surmise that it was less than it was before?

Q. You can surmise anything, doctor, but perhaps it wouldn't be true. Did you ever take the resistance of a man through the head and feet, doctor?

A. Not through the head and feet; no, sir.

Q. Did you take it through the hands? 1035

A. I have measured it through the head, and arms, and back, and so on through the different parts of the body.

Q. Your idea then is that the instrument that you use would give an accurate condition or statement of a man's resistance at the time it was taken?

A. At the moment it was taken.

Q. Whether it was taken through his arms or the back of his neck?

1036 A. The resistance would be different in different parts of the body?

Q. But it would be accurate?

A. It would be accurate at the time it was taken; yes, sir.

Q. But then you couldn't tell anything by that—you couldn't tell by that—by the resistance that he registered at that time—what his resistance would be at another time, could you?

1037 A. You could tell it would be less a few minutes afterward—it would diminish with the current passing.

Q. Take five or ten minutes afterward; can you tell what his resistance would be?

A. I think it would be less if taken again; taken in the same place it would be less than before.

Q. How do you know?

A. Because as the current passes the resistance diminishes, always.

1038 Q. Is that so?

A. That is always so in the human body.

Q. It is invariably so, isn't it?

A. Yes, sir.

Q. That has been your experience?

A. Yes, sir.

Q. And it has been the experience of every one you have talked with?

A. Yes, sir.

1039 Q. Now, doctor, you say that you think electricity will produce death in any given case that it can be so applied?

A. That is my opinion; yes, sir.

Q. Now, how many volts of electricity would you place as the necessary number to produce death in any and every given case?

A. I think in the neighborhood of 1,500 volts.

Q. In that neighborhood?

A. Yes, sir.

Q. What do you mean by that? 1040

A. One thousand may in some cases, but between 1,000 and 1,500 volts.

Q. Is there any way of telling accurately how high a current of electricity should be to cause death in any person?

A. I think that that might be considered a fatal dose; that is my opinion.

Q. Is there any way of telling accurately the number of volts that can be applied in every case to produce death? 1041

A. Only by deductions from experiments that have been made.

Q. That is upon animals. You haven't made any experiments on human beings; that is, people?

A. No, sir; I have not.

Q. So that, as a matter of fact, you cannot tell just how many volts, or how strong a current of electricity, will be sure to produce death in every case?

A. I can only give my opinion. 1042

Q. You cannot tell, I say, the number of volts—the strength of the current—that is necessary to produce death in every given case?

A. That is what I have stated.

Q. You can answer that yes or no, doctor?

A. I cannot tell; no.

Q. You cannot tell anything about it, but it is your judgment, or opinion merely, that death will be produced by means of electricity? 1043

A. Yes, sir.

Q. Now, suppose it were a fact, doctor, that a man took of the continuous current 1,500 volts of electricity and you put him in the ground and thawed him out, so to speak, would your opinion change any from what it is, as to what you have stated, that 1,500 volts would be fatal?

A. If I had the authority of several scientific men, based on experiments.

1044 Q. If a man would come here who has experienced just that condition of things, and men who have seen him take the electricity, and they would swear to it, would your opinion change as to the fatal effect of 1,500 volts of electricity of the alternating current?

A. It would depend very much on the manner of his getting it—the resistance that was interposed.

Q. It wouldn't make any difference, doctor, how he got it, if he received the full shock of the 1,500 volts of electricity—if he received the full shock. If it was 1045 sworn to upon the witness stand and verified by men whose credibility you can believe—who are credible witnesses—would you change your mind?

A. I do not think I should.

Q. As to the fatality of the 1,500 volts?

A. I shouldn't do it unless I knew what his resistance was beforehand.

Q. Well, you would change it this far, wouldn't you, that 1,500 volts of electricity didn't kill him: you 1046 would believe that, wouldn't you?

A. I do not know; I would believe that, yes, sir.

Q. Then, wouldn't you put your voltage of electricity higher?

A. No, sir.

Q. When you saw that 1,500 volts was given in any case?

A No, sir.

Q. You would still stick to the 1,500 volts?

1047 A. Yes, sir.

Q. Suppose, doctor, that there were men who received a thousand volts of electricity through the arms, and were rendered unconscious and afterward revived, would you still think that a thousand volts of electricity would be necessarily fatal in any case?

A. That would depend upon the accuracy, of course, of the statement that there was a thousand volts through the hands.

Q. Suppose they did get the thousand volts; we

will call that a fact, if you please—that they received 1048
the thousand volts of electricity. That being a fact, would your judgment change any?

A. It certainly would, if that were a fact.

Q. Suppose it is a fact, you would change your opinion, wouldn't you?

A. Yes.

Q. These men got it through the bare hands through a wire?

A. Yes, then I should change my opinion; yes, sir. 1049

Q. Then, you would say that it would take more than a thousand to kill a man in any case, wouldn't you?

A. Yes, sir.

Q. Suppose, doctor, that, as a matter of fact, there is a man in the State of New York that will take 700 volts of electricity at any time, without any perceptible injury to him—voluntarily take it—suppose that is a fact, would your judgment be changed any as to the amount of electricity that would necessarily be fatal? 1050

A. Certainly my judgment would change if that is a fact.

Q. So that if there were twenty men in the State of New York, or in the United States, that have taken through their bodies, by means of their bare hands, from 700 to 1,000 volts of electricity, and that was a fact, your judgment would be entirely changed from what it is now in relation to the fatal current of electricity, wouldn't it? 1051

A. Yes, sir.

Q. Now, it is necessary, isn't it, doctor, to know the resistance of a man in order to determine what amount of electricity in your judgment would be sufficient to prove fatal?

A. Yes, sir.

Q. Now, the fact that you don't know the resistance of this man Kemmler, for instance, how can you tell that one thousand or fifteen hundred volts is sufficient to produce death?

1052 A. It is my opinion that his resistance would not be very much above 3,000 or so, and that a thousand or fifteen hundred volts of alternating current would reduce that resistance and kill him.

Q. For aught you know, doctor, isn't it true that there may be a man whose resistance is a great deal more than 3,000? It is possible?

A. Yes, might be 20,000.

Q. For anything that you know?

1053 A. Certainly.

Q. May it not go up to 40,000?

A. Certainly.

Q. Or 50,000?

A. Yes, sir.

Q. Or 100,000; put it as strong as that?

A. It might be.

Q. For anything that you know, or can determine, it may go to any extent, almost?

A. No, I won't say that.

1054 Q. You will say merely 100,000; that is enough?

A. Yes, sir.

Q. Now, do you remember an experiment in Edison's laboratory where a dog gave a resistance of 200,000?

A. Yes, sir, I do; I remember that.

Q. So that it is possible that a human being's resistance may be a good deal more than that, isn't it?

A. It is possible with the changes in the skin; the skin may be unusually thick.

1055 Q. When you say that 1,500 volts of electricity, with the proportionate strength, is sufficient to produce death, you say it upon your belief that the resistance of a man would not be more than three, four, five, six or ten thousand, do you?

A. Yes, sir.

Q. And that is the only thing that you say; that is the ground and the only ground that you have for saying that 1,500 volts would prove fatal?

A. Yes, that is what I believe. 1056

Q. There may be men, may there not, for anything that you know, who may be able to take a great many more volts than 1,500; isn't that true?

A. I do not think so.

Q. I know you do not think so, but for aught you know such may be the fact, may it not?

A. No, I do not think so.

Q. For anything that you know, or anything that you have in your mind, there may be men that can take that amount? You haven't experimented on all men? 1057

A. I doubt it.

Q. Certainly; we understand that perfectly, doctor. We know that you doubt that: we have got your testimony here that 1,500 volts would be sure to kill?

A. It is inconceivable to me that such a thing could be.

Q. But for anything you know it may be a fact, may it not? 1058

A. . I wouldn't want to say it may be a fact; I don't want to say that, because I do not believe so.

Q. You say it is inconceivable, doctor?

A. To me.

Q. Wouldn't it have been inconceivable to you before you took the measurement of that dog out there in Edison's laboratory, that he would measure that resistance of 200,000?

A. Not necessarily, because in animals the thickness of the hair is so varying, and if the hair was not properly wet the resistance might be enormous, of course. I should expect such a thing as that. I should like to qualify my statement in regard to resistance in this way, that although a man's resistance may be 40,000 or 50,000, it depends altogether upon the condition of the skin, whether it is wet or not. If the skin is thoroughly wet, I believe that the resistance will never go above 20,000. 1059

1060 Q. We understand that; you have stated that be-
fore. Now, in cold weather, the skin being dryer, the
resistance is a great deal more?

A. Yes, sir.

Q. Now, I ask you the question again, if, in your
judgment, you don't think that it is possible that there
may be men—I will put it as a possibility—that there
may be men who have taken more voltage of elec-
tricity and can take more than you have stated as the
amount that would be necessarily fatal? 1061

A. I do not think that they can; I do not believe in the possibility of it.

Q. You say, then, that it wouldn't be possible; that is what you say?

A. That is my opinion.

Q. It won't be possible for a man to take over 1,500 volts of electricity and survive?

A. Provided his resistance—

Q. Never mind about his resistance.

1062 A. That is a material factor.

Q. Let us leave that outside entirely; we are just talking of the amount—taking into consideration his resistance—and we are talking as to how much electricity it would take to kill that man. You say that 1,500 volts would be fatal in every case?

A. I think so.

Q. Now, you think that—now, I say, is it possible
that there may be a man who will take more than
that? 1063

A. As I say, it depends upon his resistance.

Q. Then it is possible, isn't it?

A. If he had his boots on.

Q. Then it is possible, if it depends upon his resistance, that there may be a man who will take more than 1,500 volts?

A. I wish to say that if you interpose a pair of boots, for instance, and something on the feet, the resistance would be increased.

Q. I don't ask you about a pair of boots. Just 1064 wait a minute. I am asking you if it is possible—if it is possible for a man to take more than 1,500 volts of electricity and survive?

A. I do not think so; no, sir.

Q. Then you say that 1,500 volts will kill in every case—it will be fatal, in your opinion?

A. Yes, sir, I think so.

Q. Fatal in every case?

A. Yes, sir. 1065

Q. Doctor, when these experiments were being made in all these places that you attended as a medical expert, you didn't know anything about the arrangement of the machinery at all?

A. I inspected it, but I didn't make any measurements.

Q. You saw it, of course, but you don't know anything about the voltage, only just simply what you learned—what was told you?

A. That is all; yes, sir. I inspected it, but I didn't 1066 make any accurate measurements myself.

Q. So as to determine what was used there or what was not used—you couldn't tell anything about that?

A. I did not.

Q. I see, doctor, in your report you have stated that 2,500 ohms is the average resistance of an individual?

A. Yes, sir.

Q. What is your authority for making that statement? 1067

A. The authority of various books of medical electricity.

Q. Tell me one of them.

A. De Wattville.

Q. What other book?

A. Erb.

Q. What other book?

A. Halthouse; I have DeWattville here, if you want to see it for yourself.

1068 Q. What is the page?

A. I have forgotten the page.

Q. Do you know how those resistances were measured, doctor?

A. They were measured with the ordinary resistance coils that are used in medicine.

Q. Do you know through what parts of the body the application was made?

A. Made in a great many parts of the body; 1069 it was found to vary, of course, a great deal, but that is the average for medical applications.

Q. This would not be safe to take. It would not be safe to take this average for the purpose of execution?

A. I think it would as an average; yes, sir.

Q. And upon the average of the 2,500 ohms you could give a man a dose of electricity that might not be sufficient to kill?

A. I would measure his resistance beforehand, to 1070 see whether it was more than that.

Q. This book, doctor, is 1883; it runs back from 1878?

A. Yes.

Q. Since 1883 more has been learned in relation to electricity than ever was known previous to that; isn't that so?

A. I think, as regards commercial electricity, yes—industrial.

1071 Q. And the effect of electricity and the appliances—the different ways of applying that to different arrangements, and so forth?

A. There haven't been many changes — no change in medicine since 1878.

Q. I know, but so far as the use of commercial electricity goes, its effect upon people, and so forth?

A. Yes.

Q. Since 1883 there have been more improvements in machinery, appliances, etc., than during all the periods previous to that; hasn't there?

A. I can't say as to that, because I am not familiar 1072 with the industrial uses of electricity.

Q. These experiments were all small in here, weren't they, doctor—in this book—that is, with small machines?

A. With medical machines; that is what I said.

Q. No experiments with such a machine as the dynamo have been made during that time?

A. No, sir.

Q. Until very recently. At the time this book was 1073 written all of the machinery was very small, was it not?

A. This is the kind that we use continually in medicine.

Q. I understand that, but there were no large machines in use?

A. Well, there were large machines in use, but not in medicine.

Q. Doctor, let me understand you; you say that, in your judgment, 1,500 volts of electricity is the point 1074 at which death would ensue?

A. I think so; yes.

Q. Do you make any distinction as to the kind of current which should be used?

A. Yes, sir; I should say the alternating current.

Q. Would the continuous current kill at that point?

A. I think not; it would not be a certainty.

Q. But you think the alternating would be certain to kill?

1075

A. Yes; I think so.

Q. Now, will you please be kind enough to fix a point where the continuous current would kill?

Mr. Poste:

Continuous current?

Mr. Hatch:

Yes, continuous.

1076 A. I do not know; I never carried on experiments sufficient to prove that.

Q. Your idea as to the different voltage, or the power of the current, depends entirely upon the experiments that you have made out here with Mr. Brown at the Edison laboratory and at Columbia College?

A. Yes, sir.

Q. As to the difference between the different currents, alternating and continuous?

1077 A. Yes, sir.

Q. It was upon those experiments that you have based all your testimony here?

A. Well—

Q. Largely based it?

A. Largely based it, with the exception of the applications that I have spoken of, in medicine.

Q. We don't care anything about those, doctor?

A. All right, sir.

1078 *Re-direct examination* by Mr. Poste:

Q. You have stated, doctor, that the resistance of a subject—an animal—drops under the application of the current?

A. Yes, sir.

Q. You mean in a case where the current is continually applied?

A. Yes.

1079 Q. How do you account for that fact—its dropping?

A. My opinion is that the superficial circulation in the skin forms the chief obstacle to the passage of electricity and the current as it passes. It paralyzes the capillary vessels and in consequence the part becomes very red, full of blood, and the skin becomes saturated with the saline fluid.

Q. Is that dropping of the resistance immediate?

A. Yes, it is almost immediate.

Q. So that it is your observation and opinion that it continues to drop? 1080

A. It continues to drop for some time.

Q. Is there any reason in your mind where it continues to drop after this change in the skin has taken place that you have mentioned?

A. Only the change is continuous, that is all; as more and more blood comes to the part it is very much more congested.

Q. Now, in making these experiments for the purpose of ascertaining the resistance in the human body, state whether or not the contact of the electrode has anything to do with it, if it be close or the reverse? 1081

A. Certainly the electrode should be very wet and very close to the skin.

Q. Is it your opinion that a very considerable increase of apparent resistance may be shown by reason of the contact of the electrode not being perfect?

A. Yes, sir; certainly.

Q. What effect, in your opinion, does a heavy coat of hair, either upon the head of a man or the body of a dog, have upon the resistance? 1082

A. Greatly increases it.

Q. You have stated that the condition of the skin also has some effect upon the resistance of the subject. What condition of the skin has a tendency to reduce resistance?

A. Moisture.

Q. Do you remember any other tests that you applied to the animals that are described by you, after the application of the current for the purpose of ascertaining whether life remained in their body, than what you have already stated? 1083

A. No, I do not.

Q. I refresh your recollection by asking you this question—if you examined their eyes?

A. Yes, the sensitiveness of the conjunctiva of the eye to touch, which I tested in each case and found it was insensitive.

1084 Q. Is that regarded as a test by medical men?

A. Not altogether; it would not be an absolute test; it is part of it; of course not absolute.

Q. I believe you have said that your investigation or dissection was for the purpose of discerning changes of the pathological condition. Have you stated to Mr. Hatch all the changes of pathological condition that you found in the animals?

A. I think I did; I do not remember any other.

1085 Q. What is the destructive force of electricity in currents dependent upon; is it dependent upon voltage or some other characteristic of the current?

A. It depends upon the current strength.

Q. It is dependent upon the current strength, and is that expression synonymous or equivalent to the expression "electrical energy," as otherwise used—sometimes used?

A. No, the current strength represents the electromotive force divided by the resistance.

1086 Q. That gives you the current?

A. That gives you the strength of the current.

Q. Then a current of very high voltage—electrical current of very high voltage and no current strength, or no appreciable ampere strength, wouldn't produce the same effect upon any living organism that a current of high voltage, high ampere force, would produce?

A. I didn't understand your question exactly.

1087 Q. Then a current of very high voltage—electrical current of very high voltage and no current strength, or no appreciable ampere strength, wouldn't produce the same effect upon any living organism that a current of high voltage, high ampere force, would produce?

A. The question is a little confusing.

Q. The intensity of a current is represented by the number of amperes, isn't it?

A. Yes, sir; the current strength.

Q. May not a dynamo be so arranged that it gives only a small fraction of an ampere, whatever its voltage? 1088

A. That is a question in physics that I don't know anything about.

Q. What is your opinion upon this question, doctor? May the resistance of animals to the electrical current be decreased by increasing the size of the electrodes applied?

A. Yes, sir. 1089

Re-cross-examination by Mr. Hatch:

Q. The strength of the current does not depend upon the number of volts that are used, does it?

A. To quite an extent, certainly. The current strength is the electro-motive force divided by the resistance, so it must depend upon the electro-motive force.

Q. Now, cannot a current be as high as 1,000 volts that carried only a few mico-amperes, without doing any harm? 1090

A. I do not understand.

Q. Cannot a current be as high as 1,000 volts that carries only a few mico-amperes, without doing any harm, even when alternating?

A. I do not understand the meaning of the word "mico-ampere"; it is unfamiliar to me; is that a milli-ampere—I suppose so. 1091

Q. Yes.

A. If it is a small quantity—if it is measured by milli-amperes.

Q. It would be harmless—it could be harmless. It might be beneficial, and it wouldn't be fatal?

A. It would not be fatal.

Q. Do you know how many milli-amperes would kill?

A. I beg your pardon.

1092 Q. How many amperes would kill?

A. I do not think anything less than an ampere would kill; I do not think it would.

Q. Now, doctor, suppose a dog in the case that I have cited here was struck—got onto a wire, became unconscious, apparently dead, no pulsation of the heart, and to all appearances the dog was dead, and finally revived about nine hours afterward, would you consider that there was anything in that fact that
1093 had a special bearing upon the case of those dogs that you dissected there?

A. I should want to know the accurate data connected with it from a scientific standpoint. I do not think that a person who is not a physician, or who is not a scientific expert, would be certain that all signs of death were present.

Q. Doctor, the dog struck on a wire with his right fore leg; was burned; there was a burn across his snout extending back perhaps about two inches, and
1094 about half an inch deep; the dog was pulled off from the wire, and to all appearances by the party who owned him he was dead; he laid on the floor for some time, an hour or so, and was buried in a hole—partially covered up. This was done between two and three o'clock in the afternoon, and there were no signs of life until, I think, 10 o'clock that same night, and then he revived. Now, do you think that there is any possibility that those dogs may have survived? Do
1095 you think that there is any possibility that under the circumstances that happened at the time the dogs received the charge of the electricity at the Edison laboratory, that those dogs may have survived?

A. I do not think so; no, sir.

Q. Suppose the facts that I have stated to be facts in relation to this dog, and so far as the common observation goes the dog was dead—no movement—no pulsation. Suppose that was true, would it indicate that a person or an animal might receive a shock of electricity and yet survive it?

A. I think it would indicate that the facts would require a very careful investigation. 1096

Q. Before anyone attempted to perform an autopsy or a post-mortem examination on anybody after receiving electricity?

A. I think this case should have been very carefully investigated.

Q. It will be open for your investigation.

A. I couldn't tell whether there were any signs of life or not.

Q. But to your mind it has no importance at all, has it? 1097

A. Unless there were accurate statements made at the time by some one who understood it.

Q. Did you ever hear anything of this character before?

A. I have heard of people being struck unconsciously by lightning or something of that kind.

Q. I am speaking of this dog. Did you ever hear anything of that kind in relation to animals? 1098

A. No, sir; I did not.

The Referee:

If there is no objection, I would like to ask the witness a few questions.

By the Referee:

Q. Doctor, the mechanical application of the noose to a man's neck, and suspending his weight by the trap, inevitably results, if continued sufficiently long, in one or two things, either suffocation or the breaking of the neck? 1099

A. The breaking of the neck is caused by the drop, and when that doesn't occur they suffocate.

Q. That is a dead sure thing, to use that expression?

A. Yes, sir.

1100 Q. And there is no element of doubt about it, except the simple strength of the rope and the length of the drop?

A. Yes.

Q. In electrical applications, are there not a number of elements that enter in it, any one of which being improperly or imperfectly adjusted may make fatality doubtful?

A. I do not think there is any difference between the two methods. 1101

Q. Let me ask you this: The belt that runs the dynamo may slip, may it not?

A. Yes.

Q. The application of the different parts of the dynamo may become imperfect in some way, may it not?

A. That I don't know, whether it may or not; I am not familiar with the dynamo.

Q. Assuming that the ordinary dynamos now 1102 known to science are in use, the wire has got to be insulated; has it not?

A. Yes.

Q. That may be imperfect. If it is imperfect, some of the current strength would be diverted?

A. Certainly, if it is imperfect.

Q. And then the various applications of the various wires to which the different electrodes are applied —there is an element, not of great uncertainty, but an 1103 element, in which uncertainty may occur in that matter?

A. I think there is about the same as in any execution—as in hanging.

Q. Let us see if there isn't. Isn't there an element there of uncertainty in that regard—some element; not an extensive one, but some?

A. Yes.

Q. Then the element of varying resistance offers not an absolute uncertainty, but a small degree of uncertainty?

A. That can be measured; I think that can be made a certainty as to the resistance. That is either certain in amount, or else it grows less. 1104

Q. Do you think, yourself—is it your opinion, under oath—that there are more or less elements of uncertainty of fatality resulting from the application of electricity than what there would be with the simple application of the noose and the trap, as now in use?

A. I think it would require more expert work; it requires a little more expert knowledge to do such work as that than the ordinary hanging process. 1105

Q. The reason that is so is because there are so many different parts to be scientifically adjusted?

A. Yes.

Q. Whereas, in hanging almost anybody, if he has a rope and a man pinioned so that he cannot resist, and the necessary place to attach the rope, could make —perform—the hanging?

A. Yes, sir.

Q. Is hanging painful? What is the best authority on that subject? 1106

A. I think when it breaks the neck it is not; it is quite instantaneous.

Q. When it doesn't break the neck?

A. If it doesn't it is suffocation, and that is painful.

Q. How long does that last?

A. Depending on how tight the noose is around the neck.

Q. A man of average weight? 1107

A. If he can breathe a little it would take a long time; if it is entirely cut off it would take about five minutes.

Q. How does death result from electricity?

A. That is not known.

Q. How does it result from hanging?

A. By cutting—either breaking the spinal cord or cutting the vertebrae, or by injuring the spinal cord, or by suffocation.

1108 Q. So that in hanging you have a special knowledge as to how death occurs?

A. Yes.

Q. And in the application of electricity you do not know how it is caused?

A. We know that breathing ceases, and that the heart will stop beating also; we say death results from that—but why those things stop we do not know.

Q. One is mechanical and the other is what?

1109 A. Electricity is probably mechanical and chemical together.

By Mr. Poste:

Q. State whether or not, in your opinion, doctor, the application of the electric current that you have described as a fatal current produces instantaneous paralysis of the nerves?

A. I think it does.

Q. And it at the same time instantly arrests respiration? 1110

A. Yes, sir.

Q. Are there any instances recorded in the books wherein executions by hanging have resulted in the breaking of the cord—that is the rope?

A. Yes, a good many.

Q. Are there any instances in your mind where that thing has happened recently?

A. I don't remember; I know some few days ago there was some atrocious account of a hanging where the man bled at the nose and mouth. 1111

Q. Such cases of accidents as that in connection with hanging must necessarily be conducted with a great deal of cruel pain to the sufferer, must they not?

A. Very often; I should think they would be very painful.

By the Referee:

Q. I would like to know this: Whether or not it is a known fact that an ordinary current, applied as it is proposed to apply here, by reason of the paralysis to the nerve centres, so long as the current is continued, is painful. You have had experience and observation and study as a pathologist? 1112

A. I have, sir; I have made a great deal of study of them.

Q. Yes, but I want to know whether by reason of the tremendous shock which the electric current gives when it passes through, paralyzes the nerve centres in such a manner that if continued thereafter—after the first application of it—there is any pain? 1113

A. I do not think there is any at all. I think consciousness is lost at once.

Q. How certain are you of that?

A. As certain as a person can be. We are not absolutely certain that even the guillotine—when the head is cut off, the head isn't conscious for a moment, or something: but we are as certain as we can be.

Q. Have you any disputing authorities on it?

A. I do not know about that; I believe there were; I do not know about that; of course people hold different opinions in regard to that. 1114

By Mr. Hatch:

Q. Doctor, hasn't it been noticed that a person who has received a current of electricity has bled at the nose and at the eyes?

A. I don't know.

Q. You don't know that to be a fact? 1115

A. No.

Q. Do you know how long it takes for an electric spark, connected with an electric current, to go across the Atlantic ocean?

A. No, sir; I do not.

Q. Don't you know that it takes about two-tenths of a second?

A. I don't know; I do not remember any statement in regard to it.

1116 The Referee:

Will you let me have the page of that book which counsel referred to, and the date of the publication?

The Witness:

Medical Electricity by DeWattville, London, 1878, pages 30 and 31.

1117 JOHN H. NOBLE, recalled.

Examined by Mr. Hatch:

Q. Mr. Noble, in connection with your business with the Westinghouse Company you have frequent occasion to travel, have you not?

A. Yes, sir.

Q. How long a period of time have you been engaged in business; electric business?

1118 A. I have been engaged five years now in the electric-light business.

Q. What is your business?

A. The Westinghouse Company is divided up into two companies, one of which has its headquarters at New York, and I am the district engineer of that; this takes in the Middle Atlantic States.

Q. And it takes you West, does it?

A. No, sir; I don't go west of Pennsylvania.

1119 Q. You have been West, haven't you?

A. Yes, sir.

Q. Have you ever been unfortunate enough to receive a shock of electricity from a Westinghouse dynamo?

A. Yes, sir.

Q. What is the capacity of this dynamo?

A. The one from which I received the shock?

Q. Yes.

A. 1,500 light.

Q. And how many volts? 1120

A. About 1,050.

Q. Where were you when you received this shock?

A. In one of the central stations of the Westinghouse Electric Company.

Q. Whereabouts?

A. Denver, Colorado.

Q. Just state, Mr. Noble, the circumstances under which you received this shock of electricity and the method, or the manner, in which you received it, the 1121 condition of the dynamo at the time you received it, and all of the facts in connection with the machine, together with the effect it had upon you.

A. The machine was running, supplying lights commercially, and in order to have these lights burn—

Q. You had better state when this was to commence with?

A. I don't remember the exact date, but it was about fifteen months ago. This machine was supplying lights commercially, and in order that these lights 1122 should run at their proper candle power it must have been necessary to carry a pressure on the machine of from one thousand to one thousand and fifty volts; it was somewhere between those two. There were two wires leading directly from the brushes of the dynamo to the switchboard, and where they came up to the switchboard they were put on what are technically known as safety catches: they were about six inches apart. One of the safety catches had burned out and 1123 I had taken out the short piece that had remained in there and was putting in a new catch, and as I went to fix it I had hold of a metal screw-driver, and in screwing the screw I believe my hand slipped and my hand fell on the switch—fell on this—and I received a shock through the ends of these fingers.

The Referee:

That is the fingers of each hand?

1124 The witness:

Yes, the shock was very painful and dazed me for a moment. I do not suppose I was in contact with it for any length of time, because as soon as I found out where I was I was standing several feet back from the switchboard and my hands were badly burned; the skin all came off and I couldn't use either of them for I guess it was a week; they were very sore and didn't heal for three weeks.

1125 Q. What was the physical effect besides the burning of your fingers?

A. The only physical effect that I felt was a sort of extreme nervousness for several hours after the thing occurred.

Q. That gradually passed off?

A. That gradually passed off; yes, sir.

Q. The dynamo at this time was running?

A. Was running specially—

Q. Full head?

1126 A. Yes, sir; had full pressure on.

Q. Just describe it—no, I will ask you a question: You say that these dynamos that you make have a capacity of 1,050 volts?

A. When we speak of capacity we mean the amount of current that a machine will carry. In speaking of electricity we generally call that the pressure.

Q. They have a pressure of 1,050 volts?

1127 A. Yes.

Q. Do you make any larger machines than that?

A. No, sir; all our machines have 1,050 volts pressure. We make larger machines—larger in size—in order to carry a greater amount of current and supply a greater number of lamps, but they all have the same pressure.

Q. They all have the same presure?

A. Yes, sir.

Q. Now, how much can you increase that pressure from 1,050 volts without passing the danger line of the machine? 1128

A. I have never tried it, but in my estimation it might possibly be run up two or three hundred pounds higher.

Q. Two or three hundred?

A. Yes, sir; by increasing the speed of the armature.

Q. How much is the speed when the pressure is 1,050 volts? 1129

A. 1,650 revolutions a minute.

Q. Now, to increase the pressure, you increase the number of revolutions?

A. Yes, sir; that is one way of doing it.

Q. Is there another?

A. Another way would be to increase the magnetism of the field pieces, but that could only be done to a limited extent; but when the machine is in use that cannot be done, except to a limited extent, without making the machine thoroughly saturated. 1130

Q. In building these machines you build them so as to carry a certain amount of pressure?

A. Yes, sir.

Q. The same as in building a steam engine?

A. Yes, sir.

Q. Now, when you get beyond the power of the machine, you are treading upon dangerous ground, the same as you are in the use of an engine—steam engine—are you not? 1131

A. Yes, sir.

Q. You say, then, that this machine might be increased two or three hundred volts, which would make it 1,350 volts, without any danger?

A. I wouldn't say without any danger; I say it might be done without injuring the machine, but I don't think—I wouldn't say—that it could be done without danger.

Q. Is it possible to increase it beyond that without the utmost danger?

1132 A. I do not think it is.

Q. The same relative precautions exist between the steam engine that exists in the dynamo, does it not?

A. Yes, sir.

Q. In the increase of pressure above what the machine is made to hold?

A. Yes, sir, there are two reasons; one that you increase the centrifugal force and the wire on the surface of the armature is liable to fly off, and another one is that you increase the pressure, which requires a better insulation to hold it in. 1133

Q. Now, Mr. Noble, you have heard the testimony of Mr. Brown, have you?

A. No, sir, I did not.

Q. You heard the testimony of Dr. Peterson this morning?

A. Yes, sir.

Q. In relation to the number of volts that, in his opinion, is necessarily fatal?

1134 A. Yes, sir.

Q. To human life?

A. Yes, sir.

Q. Now, I ask you if you know of any current of any voltage that is absolutely fatal to a person who comes in contact with it?

A. I cannot name any.

Q. Has any point ever been reached to your knowledge where a person can say, with certainty, that a result of the application of the current of electricity would necessarily prove fatal? 1135

A. No, sir.

Q. As a matter of fact, Mr. Noble, there is a tendency in these machines to burn out, is there not?

A. Yes, sir; there is in all machines.

Q. That is speaking of all electrical machines?

A. Yes, sir, all electrical machines.

Q. Is that tendency greater than it is in the steam engine to get out of repair?

A. Well, I hardly think it is; they both are liable to get out of repair in certain instances. 1136

Q. When you put upon a dynamo a larger pressure than it was made to sustain do you increase the rapidity of their wearing out?

A. You increase the liability to accident.

Q. The rapidity of their wearing out, of course. The faster you run the machine the more rapidly it will consume itself, and accidents, of course, will necessarily follow?

A. Yes, sir. 1137

Q. You say these machines are liable to burn out? Now, in the application of these kinds of electricity to a criminal, if the machine should from any reason—in increasing the voltage—increasing the pressure on the machine beyond its capacity; is it liable to burst?

A. Yes, sir; that is, increasing it any particular amount.

Q. Suppose you give it 1,500 volts pressure?

A. I think it would be. 1138

Q. Liable to explode—what is the action on it?

A. Burning out.

Q. The insulation between two adjoining wires, or the insulation between wires?

A. In the first place, between two adjoining wires, becomes either carbonized or burned, and those two wires come in contact and those wires go upon the circuit. That can be between two adjoining wires or between wires opposite, you might say, on the armature, 1139 both of them becoming connected through the armature and forming a short circuit in that way.

Q. And you say that if one of these machines were used in this way, 1,500 volts, that the liability to its complete failure or burning out is increased?

A. Yes, sir.

Q. In order to keep these machines in proper running order, is it necessary to use—that is, if the machine would stand a long time without being used, would it be liable to get out of repair?

1140 A. A machine that had been running for a long time without getting out of repair would keep in for some time.

Q. Supposing it wasn't used at all? Suppose weeks, or months, or a year passed, from the time it was run once until it should be run again?

A. With proper care—if proper care was taken of it, I hardly think it would injure the machine.

1141 *Cross-examination* by Mr. Poste:

Q. Did you ever see a 1,050 dynamo run up to a pressure of 1,500 volts?

A. No, sir.

Q. Never did?

A. No, sir.

Q. You speak of a machine burning out. Will you swear that it is an increase of voltage that burns out the machine, instead of an increase of the current? 1142

A. Both may do it.

Q. You swear that an increase of voltage may burn out the machine?

A. Yes, sir.

Q. Isn't the increase of current more dreaded by electricians in regard to the burning out of a machine than the increase of voltage; yes or no?

A. It is in what are known as low-potential machines, but in high-potential machines I do not think it is. 1143

Q. You swear that it isn't a greater amount of danger in the dynamo that Mr. Hatch has been speaking of than an increase of voltage?

A. I think that probably would depend on—

Mr. Poste:

I will withdraw that question.

Q. Don't practical electricians fear an increase of

current as a cause of burning out in the dynamo more 1144
than they do an increase of the voltage?

A. In some systems they do.

Q. How is it in the Westinghouse system?

A. I think that they fear more an increase of pressure.

Q. Increase of voltage?

A. Yes, increase of voltage.

Q. Which would be the greatest or the more dangerous, a 650-light Westinghouse machine, 50 amperes, 1145
with 1,050 volts, or two amperes with 1,500 volts?

A. I think the 1,500 volts and two amperes, because I have seen those machines run with over 50 amperes without injuring them.

Q. What is the average capacity?

A. Thirty-seven, about that.

Q. How do you increase the amperes?

A. By putting more lights on, decreasing the resistance of the internal circuit.

Q. Doesn't the increase of the exciting force in- 1146
crease the amperes?

A. Indirectly, by increasing the pressure.

Re-direct examination by Mr. Hatch:

Q. Mr. Noble, have you tried any experiments to determine your resistance?

A. Yes, sir.

Q. What were those—what did you try? 1147

A. It was a measurement with a Wheatstone bridge in the same manner as the men were subjected in Mr. Edison's laboratory with the fluid.

Q. Now, what was the result of that?

A. Operating in the same manner as they did over there with jars containing sulphate-of-zinc solution; and measured on the bridge with one cell of battery my resistance was 1,340 ohms. I then went on to take greater battery power and got up to five cells and that is all the number of cells I had at my command.

1148 Q. How much voltage is that?

A. About five volts. With five volts it dropped down to 1,240. Then another measurement was taken with five cells after these experiments, continued from 20 minutes to half an hour; another measurement with five volts was 1,230 ohms. Then I kept them in there some time and measured with one cell again and it was 1,540.

Q. That is, the longer you held your hands in that solution the higher your resistance became? 1149

A. Yes, sir.

Q. Instead of your resistance becoming lower it became higher?

A. Yes, sir.

Q. Now, the doctor, Doctor Peterson, has said that the fact that an ampere—one ampere was all that was necessary to kill—that that would be requisite to kill. You heard that testimony, did you?

A. Yes.

1150 Q. Now, I ask you that if one ampere of current is required to kill, musn't a pressure be used of one volt for each ohm of resistance of the subject?

A. In order to force one ampere—

Q. Through the body?

A. Yes, sir.

Q. So if the resistance was 1,500 ohms with one ampere there must be 1,500 volts?

A. Yes, sir.

1151 Q. If the resistance is 2,000 ohms with one ampere, it must be 2,000 volts?

A. Yes, sir.

Q. If the resistance is 2,500 ohms with one ampere, there must be 2,500 volts?

A. The pressure?

Q. The pressure must be 2,500 volts?

A. Yes, sir.

Q. And if the resistance is one, two, three, or four thousand with one ampere, the pressure must be as many volts as there are ohms?

A. Yes, sir. 1152

Q. In the resistance of the subject?

A. Yes, sir.

Re-cross-examination by Mr. Poste:

Q. In the experiments to determine your own resistance, I understand you to say that when the electromotive force was five volts you made two measurements?

A. The first measurement I used one volt; the second measurement five volts. 1153

Q. You made four measurements, didn't you?

A. Yes, sir.

Q. The first was with one volt, 1,340. Have I got that right?

A. Yes, sir; 1,340 with one cell.

Q. The next was with five cells. Is the first correct?

A. Yes, sir. 1154

Q. Then five cells 1,240?

A. Yes, sir.

Q. The next was with five cells, 1,230?

A. Yes, sir, 1,230.

Q. Then you returned to one cell again and you got 1,540?

A. 1,540; yes.

Q. Then, so long as you used your second experiment, or your second and third experiments, being both with five cells, they showed that the more you exposed yourself to the fluid in the electrode the less your resistance was? 1155

A. So slightly that it might have been a mistake in the measurement.

Q. It indicated less resistance.

A. Yes, sir.

Q. Now, won't you describe a little more fully, Mr. Noble, what you were doing about this dynamo at the time you received this shock?

1156 A. I was—I don't remember the particular thing I was doing—I was working around the switchboard.

Q. The switchboard—what is the switchboard?

A. It is usually a broad building, perpendicularly in the station, in which are placed the recording and regulating instruments for use in the central station.

Q. How far was this from the dynamo?

A. Twenty-five or thirty feet.

Q. What time of the day was it?

1157 A. Some time during the day, I couldn't tell whether it was morning or afternoon; I don't remember.

Q. How many lamps were inserted in this dynamo?

A. There were about 650 lights; that was the general day load there. I don't remember exactly at that time; they ran that day after day.

Q. And did that use the entire force of the dynamo?

1158 A. No, sir; the entire electro-motive force it did; you have the same electro-motive force whether you have fifty or sixty lights on.

Q. But you say that the dynamo was running up to its full electro-motive force at this time?

A. Approximately; may have been a few volts below—five or ten—the dynamo runs from a thousand to about one thousand and fifty; with a light load on it would be running about one thousand.

1159 Q. Will you swear that it was running a thousand?

A. Yes, fully,

Q. You were working at the switchboard?

A. Yes, sir.

Q. What had happened to this switchboard that needed your attention?

A. Safety catch blown out.

Q. What do you mean by safety catch?

A. Piece of lead wire insulated in the circuit.

Q. Between what?

A. In one length of the circuit between two ends of the copper wire. 1160

Q. Then how many of such leaden connections are there on a switchboard?

A. On this switchboard in particular there were about fifty.

Q. What is the dimension of the switchboard?

A. The switchboard was about twelve feet high and fifty feet long—forty feet long, I guess, would be near enough to say.

Q. What was the width of that portion of the switchboard that was given up to each circuit? 1161

A. About—well, fifteen or eighteen inches.

Q. And two wires of each circuit passed within what distance of each other?

A. As a general thing they were about at least a foot, except where they came into this safety-catch holder, and there they were not more than a few inches apart.

Q. Just what were you doing at that time? 1162

A. Putting in a new safety catch.

Q. How were you doing it?

A. With a screw-driver.

Q. What kind of a screw-driver did you have?

A. Small screw-driver—kind of pocket screw-driver, seven or eight inches long.

Q. What kind of handle?

A. Metal, all through.

Q. How high up was it? 1163

A. About six inches from the floor.

Q. About six inches from the floor?

A. Yes, sir.

Q. And were you kneeling down?

A. I don't think I was; I think I was standing.

Q. You stooped over?

A. Yes, sir.

Q. How were you using this screw-driver, with both hands, or one?

1164 A. One hand.

Q. Part of the time?

A. You generally don't use a screw-driver with only one hand.

Q. When you received the shock, what was your first proof of the fact that you had received a shock?

A. It is difficult to say; it was probably a combination of the shock and the burn; the first thing I really knew about it, I guess I was standing up, I
1165 guess about five or six feet from the switchboard; I jumped away immediately; it was an involuntary action.

Q. Now, these leaden connections join what?

A. Two wires are run out from the dynamo; each one of these wires at a certain place is cut, and a little box put in there, that has a binding post on it, and two leaden strips put in between this binding post and put in by screws.

Q. Now, which end of this leaden strip were you
1166 working at; the upper or lower?

A. I do not remember.

Q. You received this shock, and when you recovered you found yourself a distance of several feet from the place where you were working?

A. Probably four or five feet.

Q. You say you found yourself burned some?

A. Yes, sir.

Q. Where were the burns?

1167 A. More particularly on the lower part of the fingers of both hands on the inside.

Q. Lower part of the fingers, down near the palms?

A. Along down here (indicating).

Q. Do you know whether your screw-driver slipped or not?

A. I think it did; I think that was the reason of my getting my hand on the other side.

Q. Well, now, are you able positively to swear just what your hands touched under all those circumstances. 1168

A. Touched some exposed part of the circuit.

Q. But you are not able to swear what they had touched?

A. Why yes.

Q. Tell us what they touched?

A. One hand touched the screw-driver which was touching one pole, and my other hand touched another part of the other pole. 1169

Q. Now, are you able to swear that the place that you touched with your other hand was on the same wire which you were working on, or on the other side?

A. Yes.

Q. Where was it touching?

A. It was on the other side; I wouldn't have received a shock if it had not been.

Q. Now, what did you call those—boxes?

A. The technical name of them is safety-catch holders. 1170

Q. Now, just where did your hand that had hold of the screw-driver touch the other side of the circuit?

A. Another part of the exposed metal part of the conductor.

Q. Did it touch above or below the leaden connection on the other side?

A. The catches were in on both sides, and I was just putting the other in.

Q. Now, is it customary, Mr. Noble, to use iron-handled screw-drivers? 1171

A. No, sir.

Q. It is not?

A. No, sir.

Q. Don't the rules of the works forbid it?

A. No, sir; not that I know of.

Q. Then, is it more dangerous to use a metal screw-driver?

A. Yes, sir; it is.

1172 Mr. Hatch:

If the Court please, I am not prepared with any more witnesses at the present, but will have some other evidence. If the Court will take an adjournment until 2 o'clock we will be prepared.

Recess until 2 o'clock.

1173 After recess.

Francis W. Jones, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct-examination by Mr. Hatch:

Q. Mr. Jones, what is your business?
A. Telegrapher.
1174 Q. How long have you been in that businsss?
A. Between 25 and 26 years.
Q. Where is your present place of residence?
A. 104 West 61st Street, New York City.
Q. You are still in the same business?
A. I am.
Q. What company are you now employed by?
A. Postal Telegraph Cable Company.
Q. What position do you hold in that company?
1175 A. Now I am in two companies; I am also in the United Lines Telegraph Company.
Q. What position do you hold in the latter company?
A. In the United Lines Telegraph Company?
Q. Yes.
A. I am the general manager.
Q. What position do you hold in the former company?
A. Assistant general manager and electrician.

Q. You say you have been engaged in this line of business for 25 years? 1176

A. Yes.

Q. During that time has your attention been called to electrical matters more or less during the period of 25 years.

A. Naturally so.

Q. And have you made experiments with electricity in various ways—during these times, during the 25 years?

A. Very many of them. 1177

Q. Have you taken considerable interest, Mr. Jones, in electricity and its effects?

A. I have, in a general way.

Q. Specifically, you have also; have you not?

A. In regard to my own line of business; yes.

Q. Now, you have observed the phenomenon of lightning, have you not?

A. I have.

Q. And that class of electrical disturbances? 1178

A. I have.

Q. Have you ever observed its effect upon a person who has been struck by a discharge?

A. I have not.

Q. You have read, of course, of those instances; have you?

A. I have read of a great many cases.

Q. Now, Mr. Jones, have you made experiments with the Wheatstone bridge—what is called the Wheatstone bridge—to determine resistance? 1179

A. I have made many thousands of them.

Q. Have you recently made experiments to determine the resistance of individuals?

A. I have.

The Referee:

You mean the human body?

Q. Upon the human body?

1180 A. Human system.

Q. Have you made experiments to test the resistance of wires, and so forth?

A. That is my ordinary line of business.

Q. That is your line of business—with the Wheatstone bridge. I have a wire here 10 feet long, and I want to determine the resistance of it; I take the wire to you and get your measurements of the resistance, and suppose I take it to a dozen electricians, what would be the result of the measurements of yourself 1181 and a dozen other electricians as to their agreeing as to the resistance of the wire?

A. That is a little peculiar. Do you mean with the same Wheatstone bridge?

Q. Not with the same bridge. That is what I wanted to know; how near they would, all of them, agree as to the resistance of the wire?

The Referee:

1182 You assume in that question, do you not, that the bridge itself is actually a standard instrument?

Q. (Continuing.) That the bridge is accurate and a standard instrument, and you can test the resistance of wires and metals with it?

A. If the piece of wire were submitted to electricians of well-known standing.

Q. I mean men competent to test the resistance?

1183 A. My answer would have to be based upon some of those suppositions.

Q. It is a supposition that I have a wire, and I send it to men who are able to manipulate the Wheatstone bridge and give a correct return of the resistance of that wire. Now, I ask you what would be the result if I send it to a dozen or twenty different electricians, with the bridge in perfect working order; would they send me the same result as to the resistance of that wire, or different results?

A. They would send you the same results. 1184

Q. That is, that so far as the measurement of a wire is concerned, or metals, electricians all agree; do they not?

A. If the resistance is—

Q. I mean upon the measurement of the resistance?

A. If the bridges are all exactly alike, glass and all, accurately adjusted, and if the temperature was the same the measurement of the wire is the same in every case, all things being equal, and men competent 1185 to measure the resistance; the resistance you would get would be the same in each case.

Q. And it is a well-known fact, isn't it, that you can measure if your instrument is right and all these favorable conditions are obtained that you have stated, that you can get as accurate a measurement of the resistance of the wire, for instance, as you can of the length of that lead pencil with a rule?

A. You can with a continuous current; but the resistance being measured with an alternating current 1186 would be different.

Q. With a continuous current can you get that same calculation?

A. With a continuous current you can get the resistance, provided all are measured with the continuous current.

Q. Now, Mr. Jones, you say you have tried the Wheatstone bridge upon individuals to determine their resistance, or to determine whether it is reliable 1187 or not?

A. I cannot say that; I tried it to determine whether it was reliable or not, but I had an object in trying, and I made a great many measurements.

Q. Perhaps it would be more proper to say to determine the varying resistance of individuals?

A. I did it to see if I could get an idea of the variation of resistance amongst different individuals.

Q. Now, will you state any of the experiments that

1188 you have made, Mr. Jones. You can refer to any case that you have; describe your machine that you made your experiments with?

The Referee:

Give us the whole data, scientifically, on which you base your experiment.

A. You don't want any whys and wherefores, but simply the pure statement of the result.

1189 Q. Yes.

The Referee:

Q. What you did.

A. On December 12, 1888, at my office at 5 and 7 Dey Street, I had some measurements taken of myself, using a small plate of zinc, or rather using two small plates of zinc, each being two and one-half inches long by one-half inch wide, and one thirty-secondth of an inch thick, soldered to the copper-conducting wires. I 1190 placed myself in one arm of a Wheatstone bridge, putting one of my middle fingers upon one piece of the zinc and the other middle finger upon the other piece, and having them moistened with sulphate of zinc, so that a circuit was established through one of my fingers and the arms and out through the other finger; the instrument used was an imported Wheatstone bridge of Elliot make; also a Thompson Mirror galvanometer. The battery used was the ordinary Cal- 1191 laud, cells in good condition.

Q. How many cells?

A. I will proceed now and give the measurements and state the cells with the measurements. With this arrangement the first test was made with one cell of battery and the resistance between the points named; that is, between my two middle fingers was 80,000 ohms, approximating. Then I changed to ten cells of battery without removing my fingers, having the arrangements made so that I could substitute one battery

for another by the manipulation of a plug, and with- 1192
out any disturbance of my position or my fingers I
substituted ten cells of battery. The measurement
then became 37,000 ohms, approximately. In a few mo-
ments I made the second test, and the result gave, with
one cell of battery 31,000 ohms, approximately, and
with ten cells of battery 24,500 ohms, approximately.
After the lapse of a few minutes I made a third test,
and with one cell of battery the resistance was 36,500
ohms; with ten cells the resistance was 21,500 ohms. 1193
Then I made a fourth test inside of ten minutes. In
this case I put on ten cells first. The resistance was
17,000 ohms; immediately changing to one cell the
resistance was 21,000 ohms; changing back again to
ten cells the resistance was 16,000 ohms. On the day
previously, on December 11, 1888, I made some meas-
urements of myself from the top of my head—the apex
—to the back of the atlas vertebrae in the neck, and
also between the back of the neck and under the point
of the fifth rib. In this case the electrodes were the 1194
same pieces of zinc as in the former experiment, moist-
ened with sulphate of zinc, one being held upon the
head and the other being pressed upon the bare skin
over the point indicated. I was included in the side
of a Wheatstone bridge, as in the other experiment,
with the Mirror galvanometer, the usual custom of
measuring resistances, and I made a test with two
cells of battery from the top of the head to the back of
the neck. The measurement registered was about 31,- 1195
000 ohms. Then immediately changing one of the
electrodes from the top of the head to over the fifth
rib, and an experiment being taken with the same
number of cells, the resistance was 26,000 ohms. Then
I proceeded in a few moments to make a second test
with five cells of battery and from the top of the head
to the back of the neck the measurement recorded
about 11,000 ohms, and from the back of the neck to
the point over the rib was 8,100.

1196 Mr. Poste:

What is that figure again?

The Witness:

Eleven thousand, and from the back of the neck to over the rib was 8,100. In a few moments I started with a third test with five cells of battery. From the top of the head to the back of the neck registered 10,000 ohms, and from the back of the neck to the point
1197 over the rib measured 8,100 ohms, about. A few moments after I proceeded with a fourth test, with five cells of battery. From the top of the head to the back of the neck measured 4,500 ohms, and from the back of the neck to the rib 3,200 ohms approximately.

On June 14th, 1889, I made some tests of the human resistance from the top of the head to the bottom of the feet. In my office at the time the thermometer registered 80 degrees.

1198 The Referee:

Let me ask you this: Did you get the temperature in the other cases?

The Witness:

I did not. The arrangement of the electrodes in the case of these tests was the employment of small tin pans, very much the shape of a cap, inside of which and against the bottom was fastened a small piece of sponge,
1199 about—when moistened about half an inch thick and about four or five inches in diameter. For the feet I had a pan inverted of similar metal, and on this pan the bare feet were placed and firmly held. To this cap or head piece was soldered a copper wire which became one of the wires leading to the bridge, and to the inverted pan on which the feet rested was soldered another copper wire which was also carried to the other point of the bridge, so that any person having this pan fastened on the head securely, making proper

contact and having their feet resting firmly on the 1200
foot-plate or pan would be included as part of the circuit of one side of the Wheatstone bridge in the usual way in which a wire or anything is placed to have its electrical resistance determined. The first party placed in this position was Henry Ackerman; his age was 42; his weight about 135 pounds, according to the statement of the subject; his hair was thin and he was in a very moist condition; as you will see by the temperature the room was very warm, and he in common 1201
with it. I make this statement in regard to all the following subjects, that he was quite moist with perspiration and the skin seemed to have a moist condition, so far as I could observe. The sponge inside of the head cap was thoroughly moistened or wet with cloth saturated with a solution of salt. The pan was then placed upon Mr. Ackerman's head and tied down firmly with rubber straps, so that there was quite a pressure—enough pressure to release some of the water from the sponge and cause it to pass down outside of his face— 1202
his hair. I then had an arrangement of—on the Wheatstone bridge I had an arrangement of wires on a switch, so that I could employ one cell, ten cells or twenty cells of the ordinary Callaud or galvanic battery, changed from one to ten or from ten to twenty, or from one to twenty, just by the movement of a peg, without having to disturb the circuit in which the subject was placed. I made my first measurements with one cell of battery, 1203
and the subject recorded 40,000 ohms approximately. I then immediately changed to ten cells, without any movement on the part of the subject and the resistance recorded 10,850 ohms. I immediately changed to twenty cells of battery and the subject recorded 7,120 ohms, or very close. Immediately another subject was placed on the chair and the same connections made as described for Mr. Ackerman; the second's name was Frank Schirer; he stated his age to be 23 and his

1204 weight to be about 150 pounds, which I judged to be correct; his skin was moist, as in the previous case; he had very thick, bushy hair; the measurements with one cell gave 9,850 ohms; with ten cells gave 3,620 and measured with twenty cells 2,770 ohms. The next subject was Mr. W. T. Johnston; he stated his age to be 22; weight 130 pounds; very moist and his hair was thin. With one cell the measurement was 15,300 ohms; ten cells, 3,000 ohms; twenty cells,
1205 2,200 ohms. The next subject's name was Richard Broad; he stated his age to be 37; his weight, 150 pounds. With one cell of battery the resistance was 7,320 ohms; ten cells, 4,620 ohms; twenty cells, 2,500 ohms. The next subject was John Laberman; he stated his age to be 17; his weight to be 106 pounds; he had thin and very light hair. With one cell of battery his resistance was 13,000 ohms; with ten cells of battery it was 4,050 ohms and with twenty cells of battery it was 2,500 ohms. The next subject's name was J. H.
1206 Kirkpatrick. He had very thin hair; his age was stated to be 58; his weight, 130 pounds. Measurement taken with one cell of battery 7,100 ohms; with ten cells of battery 3,980 ohms; with twenty cells of battery 2,450 ohms. The next subject's name was John Hubbell; medium hair, aged 32 and weight 150 pounds.

The Referee:

1207 You say medium hair; you mean medium thickness?

The Witness:

Medium thickness of hair. Measurement with one cell of battery, 2,950 ohms; measurement with ten cells of battery was 1,450 ohms, and the measurement with twenty cells of battery was 1,100 ohms.

The next was, as near as I could get at his name, Jose Costerton. He is a bootblack right on the corner of Dey and Broadway; a tall fellow; you will all find 1208 him there; his age was stated to be thirty-five; his height was five feet ten and a half inches; his weight about 150 pounds. With one cell of battery his measurement was 3,500 ohms; with ten cells, 1,470 ohms, with twenty cells of battery was 1,270 ohms.

The next subject tried was Joseph Flood; age stated to be 24; weight 135 pounds; hair thin. With one cell of battery the resistance was 8,050 ohms; with ten it was 3,330; with twenty it was 2,270 ohms. 1209

On the next day—did I give the date of these? It was June 14th. On June 17th—

The Referee:

1889?

The Witness:

1889, about 10.30 A. M. Mr. W. T. King was the next subject; weight stated to be 160 pounds. 1210

The Referee:

What was the temperature on that day?

The Witness:

I haven't got that recorded, sir, but it was quite a warm morning, I remember.

The Referee:

As warm as the other one? 1211

The Witness:

I think not quite as warm, but I wouldn't be positive. The records of the city would show. I can easily get that temperature by reference to the meteorological reports. Hair quite thin; height five feet eight inches; age 44. One cell of battery, the measurement was 8,000 ohms; ten cells of battery, 4,970 ohms; twenty cells of battery, 3,400 ohms.

1212 The next subject was Mr. T. Lund. Quite thick hair; age stated to be 28 and weight 130 pounds. With one cell the resistance was 8,500 ohms; ten cells 3,300 ohms, and we tried to put the twenty cells upon this subject, but he was so sensitive to the effect of the current that he couldn't stand it, and I had to be content with but the two measurements. That is the extent of my measurements with the human body with the Wheatstone bridge.

1213 Q. Now, from the experiments that you made, Mr. Jones, can you, in your opinion, determine how much electricity, how many volts of electricity, would be necessary to produce death?

A. I could not.

Q. Did your experiments satisfy you that the Wheatstone bridge accurately measured the resistance of the human body?

A. The Wheatstone bridge is absolutely accurate in its determination.

1214 Q. Suppose, Mr. Jones, as Dr. Peterson says, that one ampere is all that is necessary to produce—is all that is requisite to produce death—and suppose a human body had 2,000 ohms of resistance, how many volts would be necessary to destroy life, that is, upon the supposition that one ampere is used?

A. It would require 2,000 volts.

Q. Suppose the resistance was 3,000 ohms, with one ampere?

1215 A. 3,000 volts.

Q. Suppose the resistance was 40,000?

A. Requires a volt for every ampere, for every ohm of resistance.

By the Referee:

Q. You mean it requires for a single ampere a volt to every ohm?

A. Yes.

By Mr. Hatch: 1216

Q. All those questions are based on that?

A. If there is 40,000 ohms of resistance it requires one ampere to kill a man, and a man measures 40,000 ohms, in order to give one ampere of current it would require 40,000 volts.

By the Referee:

Q. Under what law?

A. Under Ohm's law. 1217

By Mr. Hatch:

Q. Has your attention been called to Mr. Brown's experiments, Mr. Jones, made at Columbia College, and at the Edison laboratory at Orange, New Jersey?

A. I read the account that was published over his name in the *Electrical World* some time last year.

Q. Did that account contain his figures?

A. It did. 1218

Q. Mr. Jones, are you able to state from your examination of Mr. Brown's report the method of applying the different currents to the animals?

A. The method that he employed.

Q. Yes.

A. I have my understanding of the method from the description given in those papers.

Q. From the description given there?

A. Yes.

Q. Mr. Jones, did those experiments of Mr. Brown's, 1219 as you understand them, show anything as to the relative force and the effect of the two currents said to have been used—or used by Mr. Brown?

Mr. Poste:

I do not quite understand what you mean. I suppose the experiments speak for themselves. I do not think you have shown him competent to say himself.

1220 Q. (Continuing.) Did you understand the question?

A. I think I did, but I only understand the results as I read them in the *Electrical World.*

Q. I mean: Take those results as they were reported in the *Electrical World* and answer the question from those?

A. You mean—I would have to have that read over again.

1221 Q. (Repeated.)

A. They showed nothing certain to my mind.

Q. Just explain?

A. I have tabulated the currents based upon the figures given, and there was such a variation among them that it leaves me in doubt as to the calculation.

Q. Have you that table?

A. I have a table that I made up from the statement contained in the *Electrical World.*

1222 By the Referee:

Q. Do you remember the date of that statement?

A. I have the paper here with the publication.

Q. Let us have the date and the place?

A. This is the *Electrical World* of August 11th, 1888; it commences on the 72nd page, and in the next number of the *Electrical World* there is a short note from Mr. Brown stating that the figure "2" has not been correctly represented, inasmuch as it should be a 1223 wire from point F to the line connecting the electrical line with the dog, or by temporarily making a mark from this point F down here, according to his correction (indicating on diagram).

By Mr. Hatch:

Q. That is from the *Electrical World?*

A. Yes, sir.

Mr. Hatch (to Mr. Brown):

Is that report correct?

Mr. Brown: 1224

It is not quite correct.

By the Referee:

That doesn't have anything to do with the figures.

Mr. Brown:

When I reported them I had the diagrams corrected.

Mr. Hatch: 1225

That isn't true of the figures here, the figures that you have made.

Mr. Brown:

There were some typographical errors; I don't remember just where they were. but you can compare them.

The Referee: 1226

The pamphlet is in evidence.

Mr. Hatch:

I think we will let the witness give his tabulated statement.

The Referee:

If it isn't correct, the pamphlet will correct it.

Q. Mr. Jones, will you please state what you have compiled on that? 1227

The Referee:

It isn't necessary to take up so much time; ask him if that is the table, and put it in evidence.

Q. That is the table you compiled?

A. Yes.

Q. What does that table show?

1228 A. This table gives the number of tests as taken from the *Electrical World*, the resistance of the subjects as given there and the calculated amperes of currents, which, of course, is determined by the number of volts employed in each test, the kind of current used, and, briefly, an epitome of the result, whether killed or not killed, showing the subjects, the resistance, the quantity of current and the time it took to kill them and how long, and cases where it didn't kill them. That is
1229 all this shows, something that you can look over without having to wade through a lot of verbiage.

Q. Now, from your investigation of Mr. Brown's experiments, are you able to tell whether the victims received the full current of electricity that was applied—sought to be applied?

A. From the examination of the diagrams I should judge that in the case of the continuous current they received but a very small proportion of it.

Q. Just tell why.

1230 A. Because there is a relay which shuts off the dog; the dog merely takes a branch or a multiple circuit.

Q. That is in the case of the continuous current?

A. As I understand it, in several of the currents—I won't say it as to all, but as to several.

Q. In these cases the victim did not receive the full force of the continuous current sought to be applied?

A. As I understand it from the description supplied.

1231 Q. How is that with reference to the alternating current?

A. The diagrams don't show how the alternating currents were applied.

Q. So that, so far as those tests of Mr. Brown are concerned, they don't show—

A. Don't show?

Q. (Continuing.) Don't show a satisfactory test, do they?

A. So far as—not to me.

Q. You understand what I mean; do you? 1232

A. If you will please state your question in full. I say as far as the application of the electric currents are concerned—the continuous current and the alternating current.

Q. The continuous current and the alternating current. If it be true that the victims did not receive the full effect of the continuous current, the truth of the force of those currents wouldn't be fully brought out or fully shown?

A. Well, the tests, to my mind, as I have read them 1233 and read every test in conjunction with them upon this same subject, they were not satisfactory; that is, it didn't indicate to me a fair and certain way in which a current could be applied to a human being to kill them instantly and painlessly.

Q. And they don't show the deadly effect or don't prove that one current is more deadly in its effect than another is?

A. They state for themselves. I see here that one 1234 dog was killed in fifteen seconds by 106 milli-amperes of current, and they failed to kill another dog with 140 milli-amperes of alternating current. It speaks for itself; I don't know how I can harmonize it in my mind.

Q. Are there any other instances there? If there are any other instances of that kind just describe them?

A. There is an instance of a dog, by 166 milli-amperes of alternating current, that died in ninety seconds, and another by 158 milli-amperes of alternating 1235 current. I find in some cases the dogs varied all the way from 3,600 ohms up to 27,500, and in other tests —I have followed this subject up in regard to other tests that were made by Mr. Kennelly at the Edison laboratory, in order not to confine my attention to just one particular test—and I was more disturbed in my mind about a certainty of action than I was when I had merely gone over these. I find Mr. Kennelly had

1236 a dog there that measured 40,000 ohms, and in order to verify that he measured him over, and in his report he has got it marked 40,000 ohms. I think I will be sure about that (referring to paper); my memory is treacherous sometimes, like all human beings.

Q. Mr. Brown had nothing to do with these experiments?

A. Mr. Kennelly was assisting Mr. Brown with them.

1237 Q. Was Mr. Brown present when these experiments were made?

A. I only know what I read here in this paper.

Q. That is reported by Mr. Brown himself?

A. It is reported by Mr. Kennelly, and Mr. Kennelly comes to Mr. Brown's assistance in some newspaper controversy, and he published in this paper a sequel to some tests that were conducted at Columbia College by Mr. Kennelly and at which Mr. Brown was present.

1238

The Referee:

Is that conceded, Mr. Brown?

Mr. Brown:

No.

The Referee:

1239 Do you want this, Mr. Hatch?

Mr. Hatch:

No, I do not know that we are entitled to that.

The Referee:

You might show what his knowledge is on the subject as an expert; taking all the tests that he knows of, and upon this being called to his attention.

The Witness: 1240

If my last answer is to remain on the record, Mr. Referee, I would like to correct it in regard to the figures I gave.

Mr. Hatch:

Proceed.

The Witness:

I have made a statement of 40,000 ohms; make it 200,000 ohms. 1241

Q. Mr. Jones, from your knowledge and experience on matters pertaining to electricity, are you able to tell how many volts of electricity and how strong a current of electricity is necessary to take the life of a man?

A. It depends entirely upon the man's resistance.

Q. Well, now, as I understand you to say, that resistance varies largely in different individuals? 1242

A. My tests show that.

Q. It depends upon the condition of the atmosphere?

A. Not to any very great extent.

Q. What condition does it depend upon?

A. Unless it may be very hot or cold, in summer and winter, I apprehend there would be quite a difference.

Q. On account of the condition of the skin? 1243

A. On account of the moisture of the human body and the condition of the fluids of the body.

Q. What is there in the body, Mr. Jones, that conducts the electricity?

A. Nothing in the body, that I know of, will conduct electricity except the saline fluids and blood; man in all other respects is a non-conductor.

Q. How about the flesh?

A. Non-conductor.

1244 Q. Bones?

A. Non-conductor: that is, relatively to these currents that you are speaking of—ordinary current of two or three or four volts.

Q. How about the nerves?

A. All tissues are non-conductors when dry, the same as the catgut string of a fiddle.

Q. Does the character of the blood change?

Mr. Poste:

1245 Mr. Hatch, I will be fair to your witness; he doesn't claim to be an expert on physiology.

Mr. Hatch:

Not exactly, but in my judgment there are experiments in different conditions of the body at different times, and if he knows, he can state.

Mr. Poste:

1246 I will enter an objection that the witness has not shown himself to be competent on physiology at all.

Q. Have you studied physiology, Mr. Jones?

A. Never made a study of it; only read generally, as I would a subject in which I am interested.

Q. And the only connection you have in these experiments is just simply the effect of the electricity?

A. That is all that I was aiming at.

Q. And the saline character of the blood, etc.,—its
1247 conditions. You have simply looked that matter up
from an electrical point of view?

A. I looked that up from an electrical point of view, having some interest in the subject, and wanted to know whether a man was a conductor.

By the Referee:

Q. Then you have studied up that question to that extent, so that you are able to say what the constituents of the blood are in regard to that matter?

A. Reasoning from knowledge, I have come to certain conclusions in regard to the subject, and I have my opinion. 1248

Q. That is what I am asking for. Do you know what the saline quality is?

A. Yes, I have often tasted my own blood and found it quite salt.

Q. You know that these other tissues of the body are constituted as you have stated?

A. I am not going to testify as a medical expert, and don't wish to. 1249

Q. From general knowledge of physiology?

A. From my general knowledge, I believe that I am correct.

A. And able to state?

A. Yes.

By Mr. Hatch:

Q. Now, I will ask if the varying conditions of the body—the varying conditions of the blood—determine resistance, doesn't it? 1250

Mr. Poste:

I object to the question on the ground that the witness is not competent to answer a physiological question.

Question withdrawn.

1251 Q. Now, what are good conductors of electricity, Mr. Jones?

A. Copper, silver, gold, zinc, and a long line of metals.

Q. Is water a good conductor?

A. No.

Q. If it is heated?

A. If it is heated it becomes a fairly good conductor. I only say this from information I have in books

1252 —text books—which are unimpeachable in our branch of science.

Q. Your own experiments?

A. My own experiments confirm all the statements of scientists in that respect.

Q. Some information taught you that there is salt in the blood?

A. I have been told that is the case, and my physician tells me that my blood has some of those constituents—iron—sometimes it hasn't very much and he 1253 gives me medicine to replenish the system.

Q. Isn't it true, Mr. Jones, if the saline properties of the blood vary, and the fluids of the body vary, that at one time they may be a good conductor and at another time they may be a very bad conductor?

A. I can state the results of the experiments of Cavendish and others in regard to the conductivity of water and the decrease of resistance by the employment of salt, and you can draw your own inference as 1254 well as I can.

By the Referee:

Q. Give it from your readings.

A. My judgment is if the blood gets in an impoverished condition, minus salt, minus iron, and minus those elements that we know go to improve water as a conductor, and a man has, as I understand, 900 per cent. of water out of a thousand in him of all the 1255 parts that make up the fluids—if that is the case, it is my judgment that an impoverishment of the blood in respect to the amount of salt is going to materially increase his resistance.

By Mr. Hatch:

Q. You take men—different ones—as you find them. There will be a variation in all of them in the respects that you have stated; will there not?

A. I have found variations here very marked in eleven men that I have measured consecutively under 1256 the same circumstances, and took the utmost pains to have the conditions perfect, and I found, as I say, very great variations; but I think in order to come to an intelligent conclusion upon the subject that not only eleven men, as I have taken, all white men, here, but there should be hundreds taken, both bald-headed men, who have had their scalp tanned by many summers, and in which a little salt and water won't get in very easy, into the pores, and others who have 1257 had their heads protected; some that are in bad conditions of blood and some that are in good, and long men, and short men, and the Negro, the Mongolian, all nations, all variety of races, should be taken and the results tabulated, and we could probably get some result of the variations and some intelligent information. But I do not think that out of the eleven men I could give you something that would apply to the whole race, or the whole coming crop of criminals.

Q. So you say that in respect to the present rate of 1258 science in relation to this it is very indefinite and uncertain?

A. That is my judgment.

The Referee:

What is that?

Mr. Hatch:

The measurement of resistance. 1259

The Referee: (To the Witness.)

Is that your understanding?

The Witness:

That is my understanding of the question.

Q. And there isn't sufficient data that will enable a man to determine what the resistance of any one individual may be in advance?

1260 A. May I be allowed to deviate from the set question, and answer as I like?

Q. I would like to have an answer.

A. Do you want yes or no?

Q. You can deviate as much as you want.

Mr. Poste:

The trouble about that is I might want to note an objection here.

1261 The Referee: (To the Witness).

Did you understand the question?

The Witness:

I don't say that I have got that exactly right.

The Referee:

If I am not right, counsel will correct me. Taking
1262 everything that you know on the subject, as far as you have read and scientific knowledge is concerned, are there sufficient data—is the knowledge sufficiently advanced upon the subject so that at the present time, in your opinion as an electrical expert, it is possible to determine what current would be required to kill any man?

Mr. Poste:

I do not think that is the question.

1263 Mr. Hatch:

That is the question that I asked. I asked in relation to the resistance first.

Mr. Poste:

Yes, whether it could be determined beforehand.

Mr. Hatch:

In advance.

Mr. Poste: 1264

You mean by tests?

Mr. Hatch:

What is that?

Mr. Poste:

You mean with a test or without a test?

Mr. Hatch: 1265

With a test or without a test.

The Referee:

Any way that is known.

Mr. Hatch:

Yes.

The Witness: 1266

I answered that question, I think, some time ago.

The Referee:

Answer it again.

The Witness:

I told you that it all depended upon the resistance of the man, assuming that we know the quantity of 1267 current that will kill a human being; and we know that there are human beings killed every few months by the effects of electric currents. We cannot say that there is no quantity that won't kill a human being. We will assume that there is a quantity that will kill a human being, and assuming that we know that quantity, it will all depend upon the resistance of the individual, whether he will be killed or not. The reason I state that now is that I find the very best electrical

1268 experts, such as Mr. Kennelly, publish articles right in this line, in which he gives the resistance taken of various animals. He finds one dog with 200,000 ohms. We cannot produce dynamo machines these days—at least I don't think they can—that will produce that much current. Take these different lots of dogs; some measured 8,000, some 4,000 and 6,000, and you will find that he comes across a dog with 200,000; he measures him over, and stars him as being right. Why can't any human being show the same resistance? 1269 Why can't they be measured and show the same thing? It is not clear to my mind on that thing.

Q. Is there any well defined average of human resistance so far as you have any knowledge?

A. I saw it stated somewhere that the average resistance of the human being was 2,500 ohms, but how that was arrived at, or the voltage, or where the tests were made, upon what parts of the bridge, I haven't the slightest idea, and I do not think anyone around 1270 here has—an electrician.

Q. So, in your judgment, there is no well defined average of the measurement of the human body?

A. I have never seen any and never heard any, and that is why I looked up these reports to see if I could find any.

Q. Mr. Jones, how many volts of electricity—how strong a current of electricity—would it, in your judgment, take to kill a human being. Or I will put it in another way: Can you tell, or can anyone tell, how 1271 strong a current of electricity must be in order to prove fatal upon a human being?

A. Absolutely, or rather I actually don't know positively the quantity that it would take, but I know the quantities that I wouldn't care to have passed through any of my vital organs—I would like to keep clear of them.

Q. Now, would it be safe to use 1,500 volts of electricity to execute the death penalty upon a human being—would that be certain to destroy life?

A. Depends on his resistance. 1272

Q. But you couldn't say that in every case, could you, that that would be fatal—the fatal mark?

A. I am quite in doubt about it.

Q. You might find a person with a resistance that was 40,000 ohms?

A. I have stated that already; same as we find a dog that has 200,000.

Q. In your opinion, in the present condition of electrical science, would any given number of volts— 1273 you have answered that question. You say that no one can tell the given number of volts that would be required to execute an individual, as I understand you to state?

A. I am in a little doubt about that, for I know that lightning very frequently kills people and very frequently stuns them, and whether they are both under the same conditions or not, it is hard to say.

Q. Now, there is another branch of this matter—

1274

The Referee:

It is now time for adjournment, and we will adjourn till to-morrow morning at 10 o'clock.

NEW YORK, July 17th, 1889.

1275

Met pursuant to adjournment:

PRESENT—Counsel as before (except Mr. Cockran).

Mr. Hatch, for the Relator, offers in evidence a statement which was produced by the witness at yesterday's session, and was referred to by him.

No objection being made, the statement is marked Relator's Exhibit "B," July 17th, 1889.

1276 Mr. Hatch:

If the Court please, it appears that Mr. Cockran is busily engaged in a will case in the Surrogate's Court, and he was in hopes that this morning he would be able to be present and to conduct the examination of Mr. Gerry; he expected to be able to perfect arrangements, so that he would be enabled to do so, but the Surrogate has ordered him to be present at the Court, and close his case; he is obliged to be there and can-
1277 not be here. He desired very much to conduct Mr. Gerry's examination and the examination of the remaining witnesses in the case. Mr. Jones, the witness now on the stand, can be cross-examined this morning, and then I want to make a formal application to the Referee to adjourn this case until to-morrow morning, and at that time Mr. Cockran will be able to give it his constant attention until it is finished.

Mr. Poste:

1278 Do I understand that the application is now made?

Mr. Hatch:

Yes, I make it now.

The Referee:

That is, after the examination of the witness now on the stand is completed you want an adjournment until
1279 to-morrow morning.

Mr. Hatch:

After the cross-examination there is a part of the examination—a few further questions we wish to ask Mr. Jones.

The Referee:

Have you any other witnesses?

Mr. Poste: 1280

I want to know whether you have completed your direct examination?

Mr. Hatch:

No, I was going to leave it the way it is.

Mr. Poste:

Then I do not desire to make any cross-examination until you complete your direct. 1281

The Referee:

Have you any other witnesses? Cannot you get some witnesses?

Mr. Hatch:

I think not.

The Referee: 1282

How is it with you, Mr. Poste?

Mr. Poste:

I do not wish to go into our case any further until the Counsel for the Relator complete their case.

The Referee:

I must say that you have already exercised a great deal of courtesy in that regard by anticipating your own evidence. 1283

Mr. Poste:

Now, so far as this application is concerned, without dwelling one moment upon the inconvenience which I have to put up with in being here and the case going over, and which I know the Referee and Mr. Hatch are put to, I say this: That if Mr. Cockran is engaged

1284 actually in the trail of a case to-day, while I think that Mr. Hatch is perfectly competent to go on and conduct this case, yet if it be placed upon the ground that Mr. Cockran is actually engaged in court, I shall not oppose it, because the rule is well settled here that that is a sufficient reason. But if any arrangement can be made whereby my friends on the other side can produce testimony of a formal character or otherwise, so as to fill up the time and save time, I think they
1285 ought to do it.

Mr. Hatch :

I think the time will be saved by permitting Mr. Cockran to conduct the examination. I am certain in relation to that, because he is familiar with the evidence that is going to be adduced here; he has examined the matter thoroughly and has talked with some of his witnesses, and I think time will be saved by an
1286 adjournment at this time, so as to permit him to carry on the examination.

Mr. Poste :

Commodore Gerry has come here, through courtesy, and has given up his vacation; he will have to stay over. I think that Commodore Gerry's testimony is largely testimony of a general character; it is historical; he does not claim to be an electrical expert in any
1287 way. I do not quite see, Mr. Hatch, why his testimony cannot be put in; I do not see that it would make a bit of difference whether I examined Mr. Gerry or whether you did, or Mr. Cockran, or anybody else.

Mr. Hatch :

Mr. Cockran has had the management of this case from the commencement of these proceedings, and he has his own ideas and his own theories in relation to it, and he desires to examine Mr. Gerry personally. I have been advised that it is placing Mr. Gerry in a very bad position, unfortunate position, and it is something that I am very sorry for indeed, and it is something that is unintentional, because Mr. Cockran thought that he would be present to-day, as the Referee suggested that Mr. Gerry might be examined and permitted to go just as rapidly as possible, and I, partially, this morning, apologized to Mr. Gerry, as far as I was able to, but I do desire that Mr. Cockran should proceed with the examination. 1288 1289

Mr. Poste:

It would be different if Mr. Gerry were a technical witness, or if he were a witness on whom you relied to prove a technical point in your case. If he were a witness to prove any material, specific fact, I think I could see how it might be important that Mr. Cockran, who has mapped out the case from the beginning, should examine him; but it seems to me that his testimony is of such a character that it would almost tell itself. 1290

Mr. Hatch:

I would suggest that Mr. Cockran may think a little different; he may have different ideas, and I feel disposed to leave that matter entirely to him, as far as it is possible.

Mr. Poste:

I will leave it to the Referee. 1291

The Referee:

Will Mr. Cockran be able to have witnesses to-morrow and go right along with the case?

Mr. Hatch:

Yes, sir.

The Referee:

We have been here ten days and I want to go along.

1292 At this point Mr. Gerry asked permission to say a few words, and upon permission being given, he stated that it was a matter of entire indifference to him who he was examined by, but that he wanted to set himself right in regard to certain statements made by the press that he was absenting himself from the city after being served; he stated that he never had any intimation that he was needed, and that upon finding that he was wanted he shortened his cruise and journeyed eight hours last night so as to be able to appear this morning. 1293

The Referee:

I think we will proceed with the examination of the witness and when it is concluded we will adjourn until ten o'clock to-morrow morning. (To Mr. Hatch) Have you finished your direct?

Mr. Hatch:

1294 We have finished our direct; we have finished for the present.

Mr. Poste:

Allow me to refresh your Honor's recollection on that point. The last statement he made in the examination of this witness was, "There is another branch to which I desire to call"—

The Referee:

1295 What is that other branch?

Mr. Hatch:

What is that?

The Referee:

You stated to the witness last night, as we were about to adjourn, "There is another branch to which I desire to call your attention." Let us see what it is. Finish your direct.

Mr. Hatch: 1296

We will consider our direct examination closed.

Cross-examination of FRANCIS W. JONES by Mr. Poste:

Q. Mr. Jones, you have—have you any more than a theoretical interest in these questions?

A. No, sir.

Q. Are you connected, in any way, with the Westinghouse Company, directly or indirectly? 1297

A. I am not.

Q. You are not?

A. No.

Q. I was struck with certain remarkable phases, statistical phases, I should say, of this examination, and I call your attention simply to the first test you made and ask you this question: In the light of the experience which you obtained in the manner of making these tests by the whole series, are you now of the 1298 opinion that the first test you made, which was with one cell, by small electrodes placed upon the middle finger of each hand; would you consider that test a reliable one of the resistance which was actually presented over the circuit to the currents? Do you consider it as reliable as some of the others?

A. In the test to which you refer, which was made on December 12, 1888, the fingers were merely lying upon the metal electrodes, or rather the middle fingers 1299 were held firmly pressed upon the metal electrodes, as described, the fingers and the electrodes being wet with sulphate of zinc. I think the result of the measurement was entirely reliable, taking into consideration the conditions which prevailed.

Q. Well, now, would or not the resistance indicated by the Wheatstone bridge in that case vary with reference to the pressure of your fingers upon the electrodes?

1300 A. It would.

Q. And the closeness of the contact?

A. Very, very greatly.

Q. Is it your opinion, as the result of these experiments, that the closeness of the contact with the electrode affects very materially the result indicated by the Wheatstone bridge: that is, the perfectness of the connection between the electrode and the subject?

A. Certainly it does.

1301 Q. Is it not your opinion that the size of the electrode very materially affects the result of the test or not?

A. It does.

Q. Is not an increase of size in the electrode followed by a reduction of the resistance indicated?

A. It is, although I—

Q. (Interrupting.) That answers me. Now, I call your attention to the first test with the large electrodes, —the tin electrodes—with which you obtained the resistance of Ackerman. 1302 That was your first test with a large tin basin electrode, wasn't it?

A. Henry Ackerman—yes.

Q. One cell indicated a resistance of 40,000 ohms; ten cells a resistance of 10,850 ohms, and twenty cells indicated a resistance of 7,120 ohms; is that true?

A. That is my record.

Q. Now, comparing the results of that test with the results of the test with these electrodes upon other individuals, state your opinion upon this question. 1303 Do you consider the first test with Ackerman with one cell to have been as reliable as the other tests upon the other men?

A. I do.

Q. Do you remember whether, in that test, or whether after that test—the first test of Ackerman—you changed the arrangement of the electrodes in any way?

A. There was no change made.

Q. I call your attention to the test of W. T. Johnston. Will you please tell me what was indicated when you used twenty cells of battery? That was the third test. 1304

A. My record shows 2,200 ohms.

Q. Won't you give me all the figures on that test?

A. W. T. Johnston, with one cell, 15,500 ohms; with ten cells, 3,000 ohms; with twenty cells, 2,200 ohms.

Q. Ten cells 3,000 ohms? 1305

A. 3,000.

Q. Twenty cells, 2,200 ohms?

A. Yes.

Q. Mr. Jones, what conclusion did you reach, scientifically, upon this fact, that in all your experiments an increase of the electro-motive force was followed by a corresponding decrease in the resistance indicated?

A. The conclusion I arrived at in respect to these experiments with 11 men, and with these previously 1306 made, was that it had conformed to my experience and observation of a great many years, and also theories which I had seen advanced in reputable works upon electro-physiology.

Q. One moment, before you finish. I direct your attention particularly to this fact of the decrease?

A. I am getting at that.

Q. All right.

A. In my experience as a telegrapher, I have found 1307 that metals—in the measurements of metals—certain metals—that an increase of resistance had always followed an increase of temperature in the metal; and that, making allowance for temperature, a piece of metal wire, properly measured on a Wheatstone bridge or by other reliable methods, would give the same resistance with the small electro-motive force that it would by using one very much larger. In measuring other substances, however, such as moistened glass, and

1308 imperfect conductors—we call them that. because they do not come within the line of metals,—I found that taking the measurement in the same manner, that the resistance would appear very much higher than when the electro-motive forces were increased. This is particularly true in regard to the measurement of telegraph lines. A telegraph wire is a metal conductor, and obeys the—follows the—law that I have stated, but it is suspended on glass insulated from point to point, for
1309 the purpose of preventing an outflow of the electric current to the earth. These insulators are more or less effective, as they are moist, or as they are very dry; or again, tree limbs are apt to touch the wires at different points. They also become conductors, but not like metal conductors. They seem to have the same property that glass does, only in a greater degree. Now, if you were to take the measurement of that wire from one end, to find its resistance as to the insulation, leaving the distant end wide open, simply
1310 measuring the derived circuit down each insulator, and down the tree limbs—if you were to take that with one cell of battery, the greater resistance in ohms, by the Wheatstone bridge or any other method you please, under certain circumstances would be very high—would record a great many millions of ohms. As you increase that electro-motive force, or the potential of your battery, the resistance would apparently decrease, so that with 100 cells the insulating resistance
1311 of the tree limbs and everything that tended to conduct the currents to the ground would be very much less than when measured with only one cell. Now, to make the application to these tests, I will have to go on a little further and say that my interest, in common with other electricians, was aroused when I found that electricity was to be made a public executioner. I wondered how it could be applied with neatness and despatch. I had no idea, although I had been a long time connected with electrical matters, and had con-

siderable observation of both atmospheric or generated 1312
currents, and I really couldn't say, or didn't know, just
what potential should be used, and what quantity
would be required, and to that end I read over the
various tests I saw published of Mr. Brown and others,
which were very interesting indeed. They have, of
course, considerable value, and then I thought that I
would like to try some experiments upon myself, to
see if the human system followed the law of metals in
regard to conduction, or whether it was in the line of 1313
electro lights in which is classed insulators, wood and
fibre, and all sorts of things outside of what we know
as good conductors. Then I made these measurements,
and found that my theory was correct. I had the
theory that the human body was a non-conductor,
excepting so far as the fluids in it were concerned, just
the same as a sponge. If you take a piece of sponge
and try to measure the dry sponge, it has almost
infinite resistance, but if you put moisture in that
sponge immediately it will drop down to very few 1314
ohms, depending upon the character of the moisture
with which the sponge is saturated; so I thought the
human system must be similar to a sponge, and then
I asked myself the question: "What causes a conduction
of electricity through the system?" I referred to
some standard works that I can name, and found
that they agreed with my theory, that bones were
not a conductor, and we use bone every day
in our business for a non-conductor, to insu- 1315
late different objects and instruments. It was
stated that the tissues, when dry, were not, and that in
fact if a man was entirely desiccated—dried up perfectly—he would be a non-conductor, the same as a
sponge. Then I thought that the conduction must
certainly depend upon the fluids in the body, and on
making any measurements I came to the conclusion
that having measured eleven men from the top of
their head to the bottom of their feet, all with conditions

1316 as nearly alike as it was possible to get under the circumstances, I found these measurements to vary very little. I couldn't account for it from thickness of hair, because those who had the thickest hair seemed to have less resistance than those who had very thin hair. I couldn't account for it by any change of conductor, because the same sponge and the same cup were used and put on with about the same pressure, and the feet were held in the same position. I used
1317 the same polarity of current and made reversals in order to eliminate—to get them in between any effects that might be in the person from electrolysis, or from a counter-current which might be caused, and with whatever skill I possessed, and with whatever experience I had had, I did my best to get reliable tests, and I found the subject varied according to the figures that I have given. The fact that they had varied from a very low potential, to a high, did not surprise us at all. It exactly conformed with my previous ex-
1318 periments in regard to wires and other similar substances, in regard to the fact that different individuals varied.

Q. That wasn't exactly my question. My question was as to what conclusion you arrived at as a result of the fact that as the electro-motive force was increased, the apparent resistance was reduced. You have answered that question, you think, fully?

A. If you are satisfied with the answer—

1319 Q. (Interrupting.) I want you to be satisfied with the answer?

A. I think I have covered it fully.

Q. Now, take the case of Costerlin, Mr. Jones, where one cell indicated 3,500 ohms, ten cells indicated 1,470 ohms, and twenty cells indicated 1,270 ohms; what do you say is the resistance of that man, as determined by your experiments—the resistance of that man to electro-motive force or electrical energy, applied in the manner you have stated?

A. I say that his resistance with one cell is 3,600 ohms, ten cells 1,470, and with twenty cells 1,270 ohms, just as registered on the instrument. 1320

Q. Then you cannot state any specific resistance?

A. I most assuredly could only guess at it.

Q. Suppose this question was addressed to your learning and experience as an electrician. Suppose you had further increased the number of cells you had, to forty cells, what result would you get? Would you have expected to find the same decrease in the resist- 1321
ance indicated?

A. I should have expected to have found a decrease, but in what ratio I am unable to say.

Q. To what limit would that increase extend? That is to say, suppose you had reduced it and kept on increasing the number of cells, would you have expected to find a decrease in the resistance indicated, along with the increase and cells employed?

A. No, I do not think that would go on to infinity.

Q. Now, Mr. Jones, as I remember your description 1322
of the manner in which these latter tests were applied it was something like this: The men were placed in the circuit and then the change was made from one cell to ten, or from ten to twenty, without taking them out of the circuit, but by simply changing the connection from one cell to a ten-cell battery: that is true, is it?

A. That was true; yes, sir.

Q. What is your opinion upon this question? Did 1323
not the remaining of those persons in that contact, and with those electrodes applied, and the application of the current itself, have a tendency—eliminating the question of the number of cells—to reduce the resistance of the skin on account of the absorption of moisture or the effect of the current at the place of application—something, perhaps, that would fall under the general head of electrolysis?

A. I do not—I can advance no theory in regard to

1324 that. I do not know how far it is possible for the moisture in the sponge to permeate the scalp and make a better connection in one hour than it could do in one minute. That is a matter that I think is a little outside of any department.

Q. That is a fair answer. I call your attention to the other branch of the question, whether or not the effect of a current upon the skin is not, by virtue of the electrical action itself, to reduce the resistance of the skin?

1325 A. It is my opinion that it does not reduce the resistance of the skin.

Q. In your opinion it is not. Did you ever make any experiments having in view the determination of the question whether it did or not.

A. I have not.

By the Referee:

Q. No further than you have taken these experi-

1326 ments? Did these experiments shed any light on that question?

A. I give my answer based upon the idea that the skin when perfectly dry is like a piece of leather—a non-conductor—and whatever conductibility or conductivity it possesses is by virtue of the moisture or the saline conditions that prevail in the skin, so that electricity, in my opinion, could have nothing to do as dynamic current flowing through the individual—

1327 could have nothing to do in either raising or lowering something that has conductibility; it must have to deal entirely with the fluids and with the pores through which the current passes to the fluid.

Q. Mr. Jones, suppose a case where a broken telegraph wire falls to the pavement on an average day—a day of average temperature and dryness in that respect—a man comes along and places his right hand over that wire: what portion of the current would he receive, supposing his hand is wet?

A. On a telegraph wire? 1328

Q. Yes.

A. That pre-supposes that at one end of the telegraph wire there was a source of electrical energy.

Q. Yes, a telegraph wire which before the break—

A. (Interrupting.) Had been in use—had been alive?

Q. Yes.

A. If the stone on which he stood was perfectly dry, the amount of current that would pass through 1329 the man would be infinitesimal.

Q. I mean what proportion of the current actually passing? So you answer an infinitesimal portion of the current?

A. No, an infinitesimal amount, because you spoke of a broken wire, as I understand you.

Q. My question was directed to what proportion of the current passes; not as to electrical energy, but as to what portion of the current?

A. I understand your question, if you will allow 1330 me, that the wire was broken.

Q. Yes.

A. If the wire was broken and there was nothing at the potential of the wire—there was no current flowing—we will but suppose there was an infinite resistance there—it was not touching the ground—consequently if a man standing on the ground were to touch the wire he would be forming a connection between the wire and the ground. 1331

Q. You did not understand my question. My question related to the wire lying on the ground?

A. Lying on the ground?

Q. Yes. Cut and lying on the ground—yes; and a man lays his hand flatly on that wire, would any current pass over that wire before the man comes along?

A. That follows exactly Ohm's law. The resistance between the wire and the ground must be known at that point where the wire is directly touching the

1332 ground, and the resistance between the wire, via the man, and the ground must be known, and the current whatever is passing will pass inversely as their respective resistances.

Q. Then is that a question which you could answer not knowing these facts?

A. It couldn't be answered without the conditions being known.

Q. Exactly, now the same would prove true, or the 1333 same rule would hold, I suppose, in regard to an electric wire broken and lying upon the ground and touched by an individual?

A. All wires carrying currents are electric wires.

Q. I meant an electric wire?

A. The same law holds good in respect to all wires carrying electric currents.

Q. Suppose an electric wire—an electric-light wire —does not touch the ground, but comes within the reach of a man who takes hold of it, can you tell the 1334 amount of energy that his body receives, even if you know the amount of energy that is developed by the dynamo?

A. We could tell the amount.

Q. (Interrupting.) Amount of force?

A. (Continuing.) Amount of current that would pass through the man if we knew the resistance of the man and the resistance of the ground upon which he was standing, or with which he had some bodily contact at some other point. 1335

Q. Would you not have to know, in addition to that, to place a valuation—would there not have to be in addition to that a leakage or a groundage of that current at another point?

A. That may be so with some dynamo machines, but with others, no.

Q. You think it varies?

A. Some machines, as the series machine, I believe, require a circuit established outside before they can

get up steam and get started. In that case a man 1336
would have to present a very low resistance to allow the magnets of the series machine to become energized and so in turn develop both electro-motive force and current up to the limit. In a case of a machine with a field already provided, the wire would have a potential at its end, but there would be no current flowing there. I do not understand that a derived circuit or a leak from the wire would have anything to do, unless to lessen the amount of current that would pass through 1337
the man, which it undoubtedly would—which the leak undoubtedly would.

Q. Well, in case of accidents from electric-light wires, where the wire sags, won't you state the electrical process which takes place, according to your opinion, where a man touches the wire—catches hold of it?

A. I can only give my opinion based upon what I have read on the subject and my experience in other directions.

Q. Well, I am only calling for that. 1338

A. I have never witnessed an occurrence of that kind. I have received some pretty heavy charges of electricity myself; enough to burn the flesh and cause the smoke to fly out, and it pained me for some days afterward, but I have never witnessed a case where a man was injured, seriously injured, by an electrical current. My opinion on the subject is that a man must form part of the circuit in such a way as to divert from the wire or take from the wire a sufficient quantity of 1339
electricity to either maim or kill him, or else to touch it and get a sudden shock which will shock the nervous system so that it is destructive to life.

Q. My question was as to what was the circuit that is formed of which this man is part?

A. The circuit may be formed in a variety of ways. There is one way in which a circuit could be formed by an electric wire being broken if it were a grounded circuit.

1340 Q. What do you mean by a "grounded circuit?"

A. I mean that one side of the dynamo is attached to a ground—to a ground wire—to the water-pipe system, or anything which gives a good earth connection, and the wire passes through the armature when the field is energized beyond the armature and goes out somewhere to some point and there stands in the air—terminates. A man might come along, and if he puts his foot in water, in a ditch or some place where it will make connection with the ground, there will be a circuit established then, from the ground on one side of 1341 the dynamo through the dynamo and armature out on the wire and down through the man, and the quantity of current that will be evoked at that time will depend entirely upon the resistance of the circuit, the resistance of the man and the electro-motive force of the dynamo machine. That is one way that a contact could be made. Another way would be to catch hold of a continuous wire passing through—form a derived 1342 circuit—where the man would receive a proportion of the current with respect to the resistance which he presented to the earth with the resistance which was beyond him, whatever it might be back to the dynamo, or beyond, but if it were a loop circuit entirely and a man were to form a connection at a point where there was a slight difference in the potential, I doubt if any harm would result. There is another way that a contact would be made. It should be both ends of the wires; 1343 the one leading to the dynamo machine and the other leading beyond to the ground would be both in the air. A man might grasp them and become himself a portion of the circuit; in that case it would follow the usual lane and he would get a current through his arms. It might be that he would touch any part of his body—it may that two points in the body—a wire might touch here and there (indicating). I do not think the direction of the current, except by reflex action, would extend beyond these two points.

Q. You mean from one finger to the other? 1344

A. Yes. If the wire were resting here, and the other wire resting here (indicating) the direct effect of the current would be between these two points.

The Referee:

In answering this question, the witness described the tip of his forefinger to his knuckle joint of the hand—of the same finger.

Q. Did you ever make any experiments to ascertain the resistance of wet bone—that is, wet bone, we will say? 1345

A. No, I have not, excepting I know that when the bone gets wet in our instruments it immediately conducts.

Q. Now, I will ask you a question, Mr. Jones. You have already testified that you have made these investigations in a scientific way, and I think your evidence has indicated that fact. Now I ask you this question, 1346 whether your opinion in regard to the possibility of sending an electrical current through the head has not changed from what it was prior to the making of these experiments as indicated by you in some articles which you wrote upon that subject?

A. I can say frankly in respect to that, that my simple object—

Mr. Poste (interrupting):

I do not impeach your object at all. 1347

The Referee:

The question is, has your opinion changed since you wrote some articles upon the subject? That you can answer yes or no.

Mr. Poste:

Our opinions all change. I wanted to know if yours had.

1348 The Referee:

In any way.

The Witness:

I would like to have my opinion defined before I would make such a reply as that.

Q. I will do that fairly. Was it not your opinion, before you made these experiments that a current could not be sent through the human skull, we will say? 1349

A. The resistance of the human skull is different for different currents. With such high potentials as are evoked by some medical machines and by frictional machines, bone and other substances will conduct electricity only in a very minute quantity, but when you come down to currents of the potentials with which we are dealing now, of the 1,000 volts, or 500 volts, down to one volt, the resistance of the human 1350 skull then becomes very great, as I infer from the measurements I have made.

Q. You never made any positive measurements under those high potentials of the human skull?

A. I do not see how it is possible to make any.

Q. No, except, I suppose, that those measurements could be made, of course, with a corpus?

A. Well, I learn from a medical authority, and a good one, that the body of a corpus is of a different resistance from that of the living organism.

1351

By the Referee:

Q. It is said that this dog that was in here the other day, when he laid down on the wire pressed it against the ground—the telegraph wire was laying over a live electric-light wire. What would be the effect of that, with regard to whether he would receive as much of the current as he would by simply being against the wire, without pressing it down on the ground?

A. My opinion in respect to that is that unless the 1352 dog formed some connection with the earth—became part of the circuit for the outflow of the current from the electric wire down through the telegraph wire and through the dog's body to the ground—it would have no more effect than it would have on a little bird you see sitting on a telegraph wire.

Q. The fact is that the dog was severely burned and shocked. Assuming that to be so, and that he laid down on the wire and pressed the wire on the 1353 ground, part of his body being on the ground, the question I want to get at is: Wouldn't some of that current have otherwise had a more serious effect upon the dog because of the wire pressing upon the ground?

A. If he pressed the wire firmly on the ground and made a good connection, I should think that the division of the current that the dog would get—I do not think it would hurt him much, but from the fact that the dog was hurt I think it must have been good.

Q. Wouldn't the pressing of the dog, pressing on 1354 the ground, have the effect of dividing the current, so that the dog would not get the whole of it?

A. Other things being equal, certainly.

Re-direct examination by Mr. Hatch:

A. Assume, as a matter of fact, that the dog lay on the wire and was severely burned on his leg, on 1355 his nose, and back along the side of his head, and laid there on the wire for ten minutes, and it was nine or ten hours before he showed any signs of life: what would your inference be as to the amount of electricity the dog received?

A. I would infer that the dog had become the channel to a considerable charge of electricity, but to what extent or to what an amount of current he had been subjected it would be a mere wild guess on my part.

1356 Q. Is there any explanation that you wish to make in relation to anything that the counsel has asked you at any point? Do you especially desire to explain yourself?

A. (Not answered.)

Q. The Referee suggests a question. You say that you have been subjected to severe currents or shocks of electricity, where you were burned. Just explain where that happened, what you were doing, and what 1357 the circumstances under which you received that shock were?

A. I could not give you the date or the day of those occurrences.

Q. No—about?

A. (Continuing) But several times in a number of years I have come in contact with the batteries, battery wires rather, or the dynamo machine with which we furnish the electric currents for our telegraphic service. As a rule, the poten- 1358 tials of those batteries do not exceed 350 volts; sometimes we have used them much larger. I have had a battery constructed up to 1,100 or 1,200 volts, but only for experimental purposes. These batteries have a resistance of anywhere from one ohm to two ohms, and sometimes more internal resistance, so that it is not like a dynamo of low resistance with a fixed electro-motive force. If you get hold of a battery there is a large amount of internal resistance to 1359 be overcome before your body will determine the rest of the current that will flow, but in those cases I have frequently—where we have had very large batteries, I have frequently gotten in contact with the electrodes or terminals of the instrument, and in some cases between one hand and the other, and I would get a very violent shock, and sometimes between one point and another, where the current has entered or left, I don't know which, I have had little holes or blisters made and the skin entirely burned off, and it was very pain-

ful for several days. I have never come in contact 1360
with our dynamo machines that are running at 310
volts and capable of developing 350, except beyond
where the resistance had been interposed. It may be
well for me to explain that in using a dynamo of 300
volts we interpose in that circuit—before it can come
to any point where it touches our apparatus or wires—
a resistance of two and one-half ohms to every volt,
so all the terminals and all the wires on the switch-
boards—so that when these wires get up they have all 1361
been broken down with a resistance of two and one-
half ohms to the volt, so any coming in contact with
one of those would not be any different than coming
in connection with the battery of the same pole. I
have never come to or made myself a shunt of a dy-
namo, and I have never considered it advisable to
do so.

By the Referee:

Q. How much is the highest voltage that you have 1362
ever had in your system?

A. I think I have had 350 cells of battery, Callaud
battery, good condition, with this internal resistance
that it possesses, and whatever my own may have
been, which I do not know.

Q. Can you tell how much voltage there would be
in that case?

A. The average was approximately a volt to the
cell. It is near enough for all practical purposes to 1363
call it that.

By Mr. Hatch:

Q. It is about 350 volts, then, Mr. Jones?

A. Yes, but that was a continuous current.

Re-cross-examination by Mr. Poste:

Q. Mr. Jones, can you tell me the comparative
resistance between a copper wire one-eighth of an inch
in diameter and a common telegraph wire?

1364 A. I can by referring to my tables.

Q. Very well; do so?

A. (Referring to book.) One-eighth inch in diameter?

Q. Yes.

A. Copper wire?

Q. Yes.

A. In the vicinity of ten times greater resistance; in the vicinity of that.

1365 Q. What effect is produced as regards the resistance of a wire by the fact that it is rusty, old and strained?

A. The effect on an iron wire? If the wire is new, of course its conductivity is at its best, whatever that may be. The wires, as usually put up, are put up in given lengths, half-mile lengths, or something of that sort, and have a joint made. If those joints are not carefully spliced, the first effect of rust is to increase the resistance at the joints; the next effect is, if the wire oxidizes very materially—grows thinner and
1366 thinner—the resistance increases as to the loss of active metal.

By the Referee:

Q. Assuming that a single dynamo would not produce over 1,000 volts, 37 amperes, or thereabouts; what is to hinder attaching more than one dynamo to the same wire which is applied to the subject—the human subject—or any other subject?

1367 A. I think so.

Q. What is it?

A. I think that the dialectric in the dynamos, one exalting the other, would be apt to break down the insulation of one or both. The insulation that is put upon the wires for one machine would stand a maximum potential of 1,000 volts, is put with reference to the maximum potential that the machine is to be run at, and if you were to put on another machine and so exalt this, that you would have an effect very much

greater in the current; it would be that a dialectric not 1368
being apportioned properly to stand such a strain—

Q. (Interrupting.) Could they be apportioned properly?

A. Could they be?

Q. Yes.

A. Well, that is not in my line of business; but my opinion is that they could be up to a reasonable limit; I don't know how far.

Q. Then, as far as your knowledge extends, there 1369
would be nothing to hinder—prevent—in attempting to execute by electricity, to generate by using a sufficient number of dynamos a large amount of current, say two or three thousand volts, and a pressure of 75 or 100 amperes?

A. I think that machines could be constructed.

Q. I mean as the science now stands?

A. As the science now stands, as I understand it, I think machines could be constructed to give out over
2,000 volts; I believe that is the case already, and I 1370
presume that machines could be put in tandem that would exalt the electro-motive force to that extent; each machine being, of course, its own fraction of the whole electro-motive force; but to what extent the amperes would be given out is a matter that depends entirely on resistance.

Q. Would there be anything about the wires or difference now known to scientific methods of well-
known insulation, so that such a current could be 1371
safely carried and applied to the person now to be executed?

A. If it was a new machine, I should like to try it before I would swear it would not break down. I have had some with very light voltage, when they came out of the shop, break down and give way.

Q. We are speaking of the wire now.

A. Yes, the wire—the insulation.

Q. The wire that carries the current to the subject;

1372 could that be insulated so as to carry such a large current as that without breaking down, with the present known state of the science, so that it would not burn out?

A. I dare say that a machine could be constructed that would probably do so.

By Mr. Poste:

Q. To your knowledge, what is the capacity of the
1373 largest dynamo in this country?

A. I only know from hearsay.

Q. Don't you know from reading, that there is a dynamo in England with a capacity of 10,000 volts in active use?

A. I know that Mr. Gordon has a very large dynamo there, and I know that Mr. Edison also put up a very large one; I know they are capable of a very large output, but whether the potential runs up that
1374 high or not, I am in ignorance of the fact.

By Mr. Hatch:

Q. Do I understand you to say, Mr. Jones, that there is a certain point at which the insulation would be affected by the force of the current?

A. In a given machine, if you increase the potential beyond the insulation that has been placed there for its maximum effect, you are inviting a break-down.
1375 At what point that will occur I am not prepared to say.

Q. There have never been any tests to determine just how much the insulation will stand, how much pressure of current?

A. I am not competent to answer that question.

Q. So that, as far as you know, there may be a point in the pressure of a current at which the insulation of the wires would be unable to stand?

A. That is presumably so.

Q. If such a point as that should be reached, then a machine could not be built that would have a capacity for more volts, could it, and be put in operation? 1376

A. I really cannot say how far the manufacturers of dynamo machines have been able to go in that direction. They are more competent to answer those questions than I am. I can only give you theory, and I do not think that is worth while.

The Referee:

Can you go on any further, Mr. Hatch? 1377

Mr. Hatch:

No, sir.

The Referee:

Under our arrangement, Mr. Cockran being engaged in the Surrogate's Court, with the understanding that to-morrow he shall be here and proceed right along until we finish up, we will adjourn until to-morrow at 10 o'clock. 1378

Adjourned to Thursday, July 18, 1889, at 10 A. M.

NEW YORK, July 18, 1889.

Met pursuant to adjournment: 1379

Present, Counsel as before.

ELDRIDGE T. GERRY, called as a witness by consent of both parties, being duly sworn by the Referee, testified as follows:

Examined by Mr. Cockran:

Q. Mr. Gerry, you were Chairman of the Commission appointed by the Legislature—

1380 A. Chairman of the Commission appointed by the Laws of 1886, Chapter 352.

Q. You. To investigate and report the most humane and practical method of carrying into effect the sentence of death in capital cases?

A. I believe that was the language of the statute; yes, sir.

Q. Who were your associates on the Commission?

A. The Hon. Matthew Hale, of Albany, and Dr.
1381 A. P. Southwick, of Buffalo, Erie County.

Q. You were appointed in 1886, originally, were you not?

A. In 1886 the first Act was passed.

Q. And you were appointed by the provisions of the Act itself, were you not?

A. Exactly.

Q. Your appointment was not made in pursuance of the Act—by any other authority but by the Act itself?

1382 A. No, sir; the names were incorporated in the Act.

Q. And in 1887, as I understand it, the term of the Commission was extended for another year?

A. In 1887, Chapter 7, Laws of 1887—I took a reference to have it accurate—it was extended in consequence of my having been absent in Europe during a portion of 1886, where I was called away in consequence of the illness of my family. I was absent from
1383 the 4th of December, 1886, to the 5th of May, 1887. The Act was to extend the time for the Commission. Our report was made in 1888.

Q. Now, your report has dealt extensively with—perhaps I ought to ask you first—

(Question withdrawn.)

Q. You filed a report on January 17, 1888?

A. I think that was the date; yes.

Q. Or about that period?

A. I have a copy here which I—this is the report. 1384
I do not know whether you have a copy. (The witness hands report to Counsel.)

Q. I think I have a copy, but I don't know whether it is as well bound as this.

A. I beg you will accept of it. Here is a copy for the District-Attorney.

Q. Your report, Mr. Gerry, as I observe, has been divided into several heads?

A. Yes, sir. 1385

Q. In which you begin by treating of the history of the law of capital punishment. That is purely historical, as I understand it?

A. Purely.

Q. Purely historical?

A. Yes, sir.

Q. It was compiled from researches?

A. Do you desire me to state the system on which that report was made up; it possibly might facilitate it.

Q. It would possibly; I would like to hear it? 1386

A. Just as you choose; it would probably simplify it. When our Commission first met, the first thing we did was to consider the present method of execution by hanging; because, if that method was satisfatory in our judgment, as our opinion was asked, it was unnecessary to proceed further in the case; and, accordingly, each of us, in our own particular different departments which we took, examined into that subject. Of course, in regard to my colleagues I am unable to state, except simply from what I know, from their statements to me, what they actually did. 1387

Q. Pardon me. We have no objection to your stating what they did. You may just state what they reported, and we will take your statement as theirs.

A. We examined carefully—I speak of myself more particularly in regard to what I did in that case; I believe my colleagues made the same examination—various medical experts, persons who were concerned

1388 in executions and who had been concerned in executions, as to the method of inflicting the punishment of death by hanging. To state the case very briefly, and the facts as they appeared, I witnessed one execution myself in order to satisfy myself in regard to the facts.

Q. Was this prior to the report.

A. The execution was subsequent—I forget whether it was—no, it was prior to the passage of the Act.

Q. I mean prior to your report?

1389 A. No, the execution itself was subsequent to that, but the facts themselves merely verified my statement. I want to be accurate. The matter is detailed in our report. It is more concisely stated in the report on pages 38 and 39 as to the method of strangulation, and the view which the Committee took of it was this: The objections to the method of hanging might be summarized very briefly. The law at the present time requires the criminal to be hung by the neck until he is dead. In one sense, in every execution the law is 1390 complied with; that is to say, the criminal is hung by his neck until he is pronounced by the attending surgeons or physicians in charge of the execution to be dead. But the practical effect of executions by hanging is one of two things: either the man's neck is immediately broken, in which case he hangs limp with nothing but the muscular quiver, and apparently without any further sensation, until he is lowered; or in the event of the knot slipping, he is then subjected 1391 to death by a process of slow strangulation, lasting from eighteen to twenty minutes. The method, practically, or hanging, and I have examined it—I am speaking now of my own examination in the case—is this, as adopted in this State: There is a large knot, about the size of the fist, to one end of which a cord is fastened; that knot is passed in this way (indicating), under the left ear, the cord passing round the throat, coming through the knot, so that it hangs in that way (indicating), and when the cord is

drawn taut, the knot is directly—almost under—the left 1392
ear. There is a great amount of skill required in placing that knot precisely there, because, as the medical men have explained to me, the neck of a man is very much like the wrist; that is to say, you can bend your neck forward or you can bend it very far back, but when you go to bend it laterally, on one side or the other, there is the same difficulty as in turning the wrist; the action is limited. You can turn it this
way (indicating) easily enough, but the other way the 1393
action is limited. Now, the object of the executioner in hanging is to make the death as speedy as possible. The knot is placed under the left ear, the man stands under a framework, which I cannot describe any better than a door-frame; that would give you a better idea of it than anything I can think of: there is a rope which hangs down and runs over a pulley, and that over another pulley, and that to a house behind, where there is concealed from view some hundreds of
pounds of weight, which weight is fastened by a cord 1394
to a staple, so that the weight is held up by that cord until it is cut. When it is cut, of course it goes down with a terrific rush. Now, when the man is placed directly under the gallows, as it is termed, and the knot is adjusted, if he stands perfectly straight and does not move, and there is nothing peculiar in the shape of his neck, so to speak, this tremendous weight, coming down, as it does, with a terrific rush, presses his neck
over that way (indicating) and breaks the neck—dis- 1395
locates the spinal vertebra; if, on the other hand, he turns his head in any way, or even in some cases of the neck where the knot is adjusted in that manner as I saw only yesterday by an account in the papers in New Jersey, where, as near as I can remember, the knot was placed under the ear, but the man, from some reason or another, did not move his neck, and the neck was not broken, then the result is that slow strangulation takes place, and slow strangulation is a matter

1396 that lasts some eighteen or twenty minutes, as appears by the statements of the medical experts in the case. One very strong illustration is, when this matter was brought to our attention, the next question we satisfied ourselves about we found it was necessary to examine into all the other various arrangements or methods of inflicting the death penalty, in order to see if there was anything we could suggest as a substitute, or whether it would be impossible to suggest anything as a substitute.

1397 Q. You mean from the methods that were then in vogue—from existing methods?

A. Yes, from existing methods; and then that involved, of course, when it came to the question of existing methods, the examination as to the reason why those existing methods were adopted, and that involved the historical examination which you mention.

Q. That is what I desired to ask.

A. I ought to state further, I mention that because
1398 it may afford you some information on the subject. We found there were over forty—I think my examination showed there were over forty—various modes of inflicting death, four of which have been considered. I think there is no method of inflicting death which was not examined, and I would say in perhaps further explanation of the matter as having taken place, that I, myself, in making the examination personally, employed some nine assistants at my own expense, and
1399 did not charge the State for them. There were over 700 authorities examined. They were about three weeks taking up each one of those.

Q. Could you tell us what those authorities were?

A. Yes, sir, I have a list of some of them here. They were examined under my instructions; under heads. I directed the heads under which I wanted these various works examined.

Q. Go right on. What was their general character? We won't ask you the various authorities.

A. They were books containing histories; cyclopedias: antiquities: histories of different portions of Europe; histories of different nations; histories of travel, showing the experience of travelers in the methods of execution which they had witnessed: almost every cyclopedia; in the manner and experience of the modes of life during the middle ages, in regard to the earlier methods of execution, and almost every work on capital punishment that there was to be found in my own law library, which comprises some 17,000 volumes. All were carefully examined on that subject. I have a very large library on criminal law· 1400 1401

Mr. Cockran:

I am aware of that; I have heard of it very often.

The Witness:

Almost every criminal report, either in the United States or in England, or in Scotland or Ireland—I think England or Scotland—including almost every law magazine, the English Statutes at Large, the Criminal Law of Scotland, various works on medical jurisprudence, various works of the Legal Society, and various works in regard to the infliction of capital punishment. I have a long list of them here and I should be very glad to have that inserted if it is of any use, as they have not been published fully. In fact, it would give you some idea of the care which was taken. There was also a very valuable commission which was most thoroughly examined—the testimony taken on the examination which was directed in England some time since. 1402 1403

Q. 1880?

A. I think it was; on the abolition of capital punishment; in itself it was very valuable; and also some French works, and Chinese.

Q. I observe in your report an allusion to the methods by which Chinese and Japanese are removed?

1404 A. We examined all those various works and an enormous number of extracts were made from every one of those works. There was a pile that took a long time in the preparation of them—I think a pile that high (indicating). They were carefully examined by myself. These various matters were sent to my colleagues during the time I was in Europe. I sent them here and they went over and examined them also. They retained possession of them some six months and 1405 then when I got back a collection was carefully made, throwing out all matters which were simply extrinsic, and the rest was crystallized and put in shape.

Q. I understand, Mr. Gerry, that in examining all those various methods by which human life was destroyed, your object was to see if a more humane and practical method of destroying life than the one in existence could not be found?

A. That is it exactly, sir.

Q. And I understand that you rejected every one 1406 of what might be considered the ancient or usual methods of inflicting the death penalty?

A. In order to avoid everything which came within the constitutional provision of being cruel and unusual.

Q. You rejected them, anyway, on the ground of humanity?

A. On the ground of humanity; precisely.

Q. I mean to say, if I recollect from reading your 1407 report, which I read with a great deal of care and interest, you took the ground—the Commission did—that you were appointed not only to find the most effective, but the most humane, method?

A. Precisely; that was the object I had.

Q. So that all existing methods of inflicting the death penalty you rejected as being less humane than the rope was itself in the first instance?

A. Exactly.

Q. Now, in investigating all these various methods

by which death was inflicted you invariably found, did 1408
you not, that however slow the torture might be, however slow the approach of death might be, under various methods, that they always proceeded on the basis of destroying some essential organ of the human body?

A. Some essential organ?

Q. Some organ essential to the carrying on of the machine?

A. Some went to the extent of destroying the entire machine itself.
1409

Q. I understand that that was in cases of breaking on the wheel, and there they did not break the entire machine exactly, although they ultimately made a pretty good thing of it?

A. Yes.

Q. But in each instance the death, as practically the torture, was caused by levelling some foreign substance against some organ of the body which proved fatal to its action?

A. Not necessarily. There were certain cases where 1410
that was not so. Take, for instance, the crucifixion: death followed from exhaustion.

Q. That followed from exhaustion, although I understand from your report, and in fact from the general information we all have on the subject, that all these prolonged tortures were really more in name, and that they were shortened by spear thrusts, or, as we know, in breaking on the wheel, the executioner usually had a small cord around the victim's neck and 1411
strangled him?

A. Or generally by a blow across the chest.

Q. In France they were generally strangled by a small cord around the neck?

A. Yes, sir.

Q. The *coup de grace* which was often used with a blow on the chest which cut short life, and was in fact a blow of mercy to cease the torture?

A. Yes, sir; exactly.

1412 Q. The point what I want to call your especial attention to is this: In every instance where the death penalty was inflicted, either by civilized or uncivilized nations, or nations that were barbarous or semi-barbarous, the death was always accomplished by destroying some vital organ practically?

A. Some, or all.

Q. Some, or all. Now, Mr. Gerry, in the case of burning, it is some or all. In the case of burning, 1413 really, the death was inflicted by suffocation?

A. Precisely.

Q. I mean the smoke suffocated them?

A. Exactly.

Q. And in case of crucifixion, that was a case where the person usually died of pain and starvation, since they didn't feed them?

A. Yes.

Q. I don't think you came across any experiment where a man was fed to sustain life while on the 1414 cross?

A. I don't remember any such case.

Q. Any refreshment that was given was intended to aggravate the pain by stimulation?

A. Except in the crucifixion of our Blessed Lord, where there was wine and myrrh offered.

Q. Vinegar?

A. It was vinegar and myrrh that was supposed to have been offered for the purpose of deadening pain.

1415 Q. I understand it was offered for the purpose of mocking Him. They gave Him vinegar instead of wine?

A. They gave Him vinegar, one for the purpose of deadening pain, and the other was for the purpose of stupefaction; myrrh was the stupefying drug.

Q. You decided, as I understand, that you could not improve on hanging if any existing method of destroying life was to be adopted; that is, if life was to be destroyed at all by any of the methods hitherto used you could not improve on the simple, old-fashioned rope? 1416

A. I think so. There were four that were suggested in the circular which was issued by our Commission.

Q. But I understand that you refused to adopt any of them. I remember the four. As I understand, you rejected the guillotine?

A. Yes, sir; we rejected the guillotine on account of its connection with blood and the French revolution. It had a history of a very unpleasant savor connected with it. 1417

Q. Would the tradition of the method of execution —would that deter you from adopting it, if you thought it was the best method?

A. So far as the deterring effect was concerned, we did not discover that the effect of the execution by the guillotine was presented.

Q. Among yourselves?

A. No, sir. 1418

Q. As a matter of fact, the superiority of the guillotine over the rope has never been definitely established; has it?

A. Simply that the fact of the severance of the head from the body is immediate.

Q. Isn't it a fact that the effect in the case of strangulation upon the victim—the effect that has been known of—is a deadening effect—a stupor—a profound sleep?

A. It has been described by several who came to life after being executed. 1419

Q. Not after being executed?

A. Partially executed, I should say.

Q. People who have been cut down in cases of attempted suicide—and there have been experiments tried by Frenchmen upon themselves?

A. Yes.

Q. And the general consensus of opinion among

1420 scientific men upon that subject is that the effect of strangulation is a deadening sensation—a stupor—sleep; isn't that so?

A. That is the opinion of a great many medical men, as expressed; yes.

Q. Mr. Gerry, it was then because—at least you will correct me if I am wrong in the assumption—I assume it was because you found that no practical improvement on the rope could be made, that you turned to
1421 new methods to see if science would not supply a new method—a method which was not in use?

A. No, there was one method in use, adopted only by one nation, which, in my own individual opinion, was as expeditious as the rope, and I am not certain but it was as expeditious as electricity.

Q. What is that?

A. That is the garrote, a system by which the criminal is confined, as you know, with a collar on his neck, and there is something very much like an auger
1422 which, by a sudden twist, crushed the backbone—spinal column—and, as near as can be ascertained, produces instantaneous paralysis of the whole system.

Q. That system is in vogue in Spain?

A. And in the colonies of Spain, more particularly in the colonies of Havana and Cuba.

Q. That proceeds on the basis already mentioned—against some vital organ of the body?

A. Yes, it produces an instant and general paraly-
1423 sis of the whole system.

Q. It is an external force levelled against an essential organ of the body?

A. Yes.

Q. That is the general definition that I suppose could be applied to all those methods of punishment?

A. Yes, it is either to an essential organ or to all the essential organs in the body, I should say.

Q. I mean as to the essential organs of the body; there is a distinction. When I say an essential organ,

that doesn't involve all; if you proceed against all you 1424
certainly include one. I want you now to direct your attention to what you have not considered before, and I ask you if the methods of punishment heretofore in use—I mean the methods of capital punishment which were in use—have not consisted in the application of some external force to some vital organ of the human body—some vital organ or organs of the human body?

A. I do not think in many cases, while that is the
result, such was in reality the design, because in a very 1425
great many cases, particularly among the uneducated nations, their object was to cause death—the object of inflicting the death penalty was to inflict as much torture as possible before death, and the object really in the infliction of the death penalty. While death was the ultimate object, all the essence of the penalty consisted in the infliction of as much physical pain and suffering as possible before death finally intervened to stop it. Take this illustration of Ravaillac tearing a
man apart by wild horses. 1426

Q. Take that: wasn't that a proceeding against, practically, all the organs? Wasn't it pulling the heart from contact with the body?

A. No, it was pulling the arms and legs, if I remember the description of the execution, from it.

Q. Don't you remember that in pulling the arms from the body—

A. (Interrupting.) They wrenched them off—the
unfortunate subject was torn literally to pieces. 1427

Q. Wasn't it in the case of Ravaillac that they had to apply the knife?

A. They used to tear them—the object was to tear them apart.

Q. I am not asking their object. If I recollect the the case of Ravaillac, the resistance of the sinews of the body was such that the surgeons had to apply the knife, and, don't you remember, that they practically severed the parts from the body? From what you know of the case of Ravaillac, wasn't that so?

1428 A. The arms and legs.

Q. Now, if the legs were torn from the body—

A. (Interrupting.) And nothing left but the trunk.

Q. (Continuing.) The trunk could not sustain life by itself?

A. No.

Q. Death would be caused by hemorrhage?

A. Death would be caused by hemorrhage and shock.

1429 Q. Yes. That would be an external force applied to a vital organ and all vital organs?

A. Yes, sir.

Q. Therefore, Mr. Gerry, don't you feel that you can answer my question in the affirmative, that up to the time when this law was put upon our statute books, the method by which death was inflicted—the death penalty among all nations, was by the application of some external force against some vital organ of the body?

1430 A. It was done by some external force to tear apart some part of the body—I want you to understand this—but there were some methods of inflicting death—for instance, by the administering of poison—where there was no external force.

Q. Of course, but wasn't that an external force; wouldn't you call that an external force?

A. It was taken internally.

Q. It was taken internally from the exterior; it was an external force?

1431 A. I only want to be careful, and accurate.

Q. You want to distinguish that it was not always a weapon like a spear?

A. Yes.

Q. That is the reason I put my question in that way.

A. Yes.

Q. It was for that reason, so as to cover poison, that I put it in that form?

A. Yes. 1432

Q. With that explanation I am correct in assuming that in the course of your researches all through the history of human institutions, human laws, human inventions, you found the death penalty in every instance was inflicted by the application of an external force to some vital organ or organs of the body?

A. Inflicted as the result of an external force, I should say.

Q. That is, death ensued from that? 1433

A. Yes.

Q. That is, it was inflicted by that means?

A. Certainly.

Q. In what you say about the torture I think you and I agree—that the torture consisted in rather delaying the death and in inflicting pain upon the nerves which would not amount to death; I suppose I am correct in that?

A. Yes, I do not think there is any difference.

Q. When it came to inflicting death, then the external force was applied to some essential organ, and whenever it was not applied against that it was applied for torture and not for the purpose of producing death? 1434

A. Yes, excepting where death was allowed to come as the result of it.

Q. That was in the case of crucifixion?

A. And the case of impalement, where a stake was thrust through the body and the victim was allowed to remain there until he literally died from the exhaustion. 1435

Q. He died not only from exhaustion but from hunger?

A. From shock and from pain. Nobody knows, because nobody that I have seen has seen any case of death from impalement.

Q. But it has been known that death from impalement very seldom resulted from shock?

1436 A. Only from the striking of a vital organ.

Q. Resulted from exhaustion and famine?

A. Yes, certainly.

Q. A man was always exposed under a burning sun?

A. Yes, that was the general method.

Q. And the effect was that the burning sun descended upon him, and being unable to shade himself in any way, it produced a famine and thirst that would produce death? 1437

A. Taken in connection with the internal organs—the insertion of the pale.

Q. You might take the case of a person being buried alive: that was a simple case of death either by suffocation or by exhaustion?

A. Exactly.

Q. Now, Mr. Gerry, let me ask you this question as you have looked into the matter: While it is more historical testimony than anything else, I know of no 1438 better assurances than yours.

A. Thank you.

Q. And you have given attention to it, and perhaps the courts have not attended to it as much as you have. Is it not a fact that in all of the punishments that have been inflicted under the civil law, torture was never inflicted by way of punishment—torture, so called—except by way of compelling confessions?

A. Yes, excepting in the case of—

1439 Q. That was known to the common law; that is, not what we have.

A. You mean the term civil law as contradistinguished from criminal law?

Q. I meant the crimes for which the Bastile and other modern punishments have been used.

A. Yes.

Q. They were inflicted for the purpose of torturing a man into a confession?

A. Yes.

Q. The torture itself was called the question? 1440

A. Yes.

A. All those tortures, the rack and all those inflictions, the putting of a man's knees between posts and breaking the bones by successive pegs; they were all called the question, were they?

A. They were usually known by that term.

Q. And the question was repeated after each application of the torture?

A. After each application or turn of the winch. 1441

Q. And at each application of the torture an additional wedge was put through the knees and driven in between each question?

A. Yes, exactly.

Q. And there was what is known as the question ordinary and the question extraordinary; wasn't there?

A. Yes.

Q. All these tortures were inflicted carefully, so as to avoid the death penalty?

A. Yes. 1442

Q. But when a man confessed he was taken out and expeditiously removed?

A. Yes.

Q. Now, isn't it a fact that even these tortures under the civil law were inflicted under the name of humanity or mercy?

A. I do not think either of them were under the subject of humanity of mercy.

Q. Don't you know that they were claimed as an evidence of mercy? 1443

A. I do not think so.

Q. Don't you remember that the principle of the civil law was that no man should be executed—

A. (Interrupting) I know that was the procedure in the method of obtaining the confession that you mention. As I remember the law on the subject, these various tortures were inflicted for the purpose of extracting confessions, not simply for the purpose of exe-

1444 cuting the criminal himself, but in order to enable the officers of the law to obtain by that means evidence against his accomplices and against other persons, and the principle in that case was, as near as I can ascertain it from careful reading, that the object of the law was for the protection of the State or the King, as the case might be, and therefore the means were justifiable for the purpose of accomplishing the end.

Q. Are you quite clear about that? Isn't it a fact
1445 that the instance which you mention, where the torture was applied for the purpose of obtaining evidence, was outside of the law and arbitrarily exercised by persons or power? Isn't it generally conceded that that was the result?

A. That was the result, undoubtedly.

Q. Isn't it the fact that where the torture was legally applied it was for the purpose of exacting admissions of guilt from the person himself?

A. In certain cases it was.

1446 Q. And what you mention was an abuse?

A. Certainly.

Q. In England there is no doubt that the rack was used for that purpose where there was no legal justification or excuse for it?

A. Where—

The Referee:

No legal justification.

1447

Q. There was no legal excuse for it. It was arbitrarily applied, it is supposed, even oftener than we know, for the purposes of extracting testimony from persons on trial?

A. Yes; we don't differ on that point.

Q. Let me ask you. You said there were at least three other methods that you thought were preferable to hanging; didn't you?

A. I said there were three other methods.

Q. That were more humane and decent? 1448

A. There were four.

Q. What were they, Mr. Gerry?

A. The first was the guillotine; the first we considered was the guillotine. That was preferable to hanging for this reason, that it was certain. The infliction of the punishment, in other words, did not depend upon the conduct of the person executed.

Q. You thought it was superior in that respect?

A. As I have stated, in the matter of hanging, the 1449 matter of the position of the man, his physical development, might or might not accelerate the death. In other words, as I have shown, if he stirred or turned, or twisted his knot, it was prolonged; whereas, on the other hand, the twisting of the neck made no difference; the vital functions were destroyed entirely.

Q. As far as the guillotine was concerned, you concluded that it was a more expeditious and neater method and more certain of dispatching the man than hanging? 1450

A. Oh, yes, but it had the bloody element in it, which was very unpleasant.

Q. There wasn't such marked superiority, in your judgment, in it as would justify the adoption of the system on that account?

A. In view of the temper of our people.

Q. And, in fact, the countries that have lived under the common law have never tolerated the effusion of blood?

A. Yes. 1451

Q. And even under the civil law?

A. That was also one of the objections to hanging that I intended to mention, and I think there are one or two cases where the executioner, by an error of judgment, selected too small a cord, and the head was cut off.

Q. I will come to that in a moment; I think there is one instance of that now on record?

1452 A. Yes: I think it is in our report.

Q. I think you have mentioned—will you mention the other?

A. The other method was the garrote, which I think you have already referred to.

Q. That you did not adopt because there was no evidence of its finding favor among English-speaking people?

A. It was limited entirely to the Spanish nation.
1453 There was a question about the disfigurement and the mutilation of the remains by this crushing process, and after a careful consideration of the matter—we gave it our careful attention—our Commission decided that they would not recommend it; although it was more certain than hanging, and, like the guillotine, it did not depend upon the act of the person garroted. The pressure on the neck and the twisting of the screw enacted the execution.

Q. It was rejected by you simply because it was
1454 adopted by Spain and her colonies.

A. Simply because no other civilized nation had adopted it. We thought it would not meet with the favor of the American people.

Q. What was the other method?

A. The other was by application of prussic acid, or certain deadly poison, by what is known as the system of hypodermics; that is to say, a syringe or small needle was injected under the skin.

1455 Q. Why was that rejected?

A. It was rejected for several reasons; first of all on account of the difficulty of selecting one particular poison which could be relied on for administration at all times without danger to the person applying it. In the case, for instance, of prussic acid, we found on an examination of the apothecaries and the medical profession that the more powerful the acid, it was more susceptible to ready decomposition. In the case of prussic acid some medical men state that it is almost

dangerous to open it in a room—that the odor of it is 1456
so penetrating it is apt to affect the person opening it.

By the Referee:

Q. Very garlicky, also?
A. The odor of it.

By Mr. Cockran:

Q. It is unpleasant?
A. Yes; it is unpleasant in its odor. It is a deadly 1457
prostration. The odor is of the bitter almond. If you smell it in any of the ordinary preparations now in use by photographers, the odor is very unpleasant.

By the Referee:

Q. It is used to kill bugs and flies with very often?
A. Yes, it is the bitter almond odor, but when it is intense it is very unpleasant. The next was the difficulty of having that property admistered; circulation 1458
is something which occurs, which is a question that comes under medical ability, and to be certain in the administration of that it would be necessary to have a man with considerable medical experience in order to judge as to the amount to produce death, and in order to judge as to the manner of application and where to apply it, and the suggestion was made in the circular which was issued by our Commission, a copy of which I would like to show. I want to produce that. 1459

By Mr. Cockran:

Q. I wanted to get at it, Mr. Gerry.
A. I should like to have that annexed to my testimony, Mr. Cockran, if you please. That circular was sent—there were several hundred of those circulars sent, and they were sent to all the Justices of the Supreme Court and the medical and the other professions

1460 throughout the State and distributed as widely as the Commission could possibly distribute them. There were several hundred of those, and we received about 200 replies to that circular after they had been sent out. They were sent out I think some six months ago. I think my colleague, Dr. Southwick, of Buffalo, had charge of the circular chiefly, and of that there were 81—I will state the result, Mr. Cockran, if you would like to know it.

1461 Q. You have gone a little further; my question was simply confined to why you did not adopt prussic acid. Can you give any reason?

A. I was about to state that I will endeavor to follow your suggestion. The medical men, in reply to that circular, protested very much against going into the hypodermic syringe, for several very strong professional reasons, which they urged.

Q. Will you tell us what was the professional reason?

1462 A. In the first place, the difficulty of finding any medical man who would act as a public executioner.

Q. And they felt that they could not trust the syringe in other hands?

A. They suggested that the syringe, unless it was properly inserted, would be uncertain in its action. It was very strongly urged by men in the medical profession.

Q. I have known where men have shown a great hesitation in the use of other things.

1463 A. I have also.

Q. And I do not know that that objection is of any consequence?

A. It was very strongly urged by men in the medical profession.

Q. Did they claim that it required any particular medical skill to insert a syringe and inject a dose of prussic acid?

A. They did.

Q. Isn't it well known that people with ordinary 1464
skill only, use these hypodermic injections of morphine on themselves?

A. Yes.

Q. Would that require any skill?

A. That was the stand which the medical profession took.

Q. In your judgment?

A. In our judgment of the case; we found out that the difficulty was, that in the administration of these 1465
poisons, in the first place, as I have stated, it required a certain knowledge of the poison itself, owing to the danger which might result from inexperienced men trying to handle prussic acid for experimental purposes.

Q. Is that the only poison?

A. No; there were others. Morphia was suggested as one, but as that is used more for quelling pain, and the continued use of it would produce the morphia habit, there might be very many cases in which they could not tell what would be required to produce 1466
death; and in other cases it would not be administered with any great dread of death at all.

Q. You think, in other words, if morphine was adopted it would make death somewhat agreeable; it would rid it of its terrors?

A. It might, to a certain degree.

Q. Wasn't it your purpose in looking up a law, or trying to frame a law, to try to find one that would be humane? 1467

A. My individual idea is that the dose of morphia would be most efficacious.

Q. But you surrendered your opinion on account of your associates?

A. Yes.

Q. You still have that opinion?

A. I see no reason why—yes.

Q. And they objected to it because it would make it too painless?

1468 A. The objection was—they did not object so much to making it too painless, but they regarded that while it might create very serious results it would create a prejudice against the physicians in the use of hypodermics.

Q. Their objection, then, was based purely on grounds personal to themselves?

A. Professional grounds.

Q. Professional grounds?

1469 A. I mean not to themselves as individuals, but to members of a profession; that it would create among the ignorant, where it was necessary to use hypodermics for the purpose of quelling pain; if they were used there would be a great prejudice created, which, in many ways, would interfere with the progress of their profession.

Q. That was the reason?

A. That was the reason that was practically laid aside.

1470 Q. And it was that that you thought was the best?

A. I saw no objections, but I acquiesced to the views of the medical profession and the views of my colleagues.

Q. That left nothing but electricity?

A. The other one was electricity.

Q. Of the four methods which you submitted in this circular?

A. Yes.

1471 Q. In order to get this circular clearly before the Court perhaps it had better be put in evidence. This is one of the circulars?

A. That is a copy, sir.

Q. There was more than that circular?

A. There was another one sent to medical experts, so my colleague, Dr. Hale, advises me. I have not a copy of that.

Q. Was it sent subsequent to this, or before it?

A. I think it was sent either at the same time or before; it was while I was in Europe.

Q. You cannot inform us about that? 1472

A. I cannot; that is a question I know nothing about.

Q. This particular circular—this is the form in which they all were—so that I may offer that in evidence as the circular that was issued?

A. Precisely.

Circular offered in evidence. Admitted, and marked "Exhibit A, July 18, 1889."

Q. I will read that circular, Mr. Gerry, so that we will all have it before our minds. 1473

(Mr. Cockran then read the circular).

Q. Mr. Gerry, before this circular was issued, the Commission had practically got down, as I understand it, to one of these four methods?

A. That was practically where we stood. Yes, sir.

Q. You had examined the history of capital punishments, the history of the laws of the various countries—you had examined books of travel, and, I believe, looked into the medico-legal papers, and you had brought out of it all the impression that if any changes were to be made it would take the form of one of these four? 1474

A. That was our judgment.

Q. And then you issued this circular, and may I ask to whom you sent it?

A. That circular was sent by my two colleagues, who had charge of it—Dr. Southwick and Mr. Hale, but they informed me that they were sent first of all to all the Justices of the Supreme Court. Then they were sent to the various Sheriffs of the different counties, members of the medical profession, and they were sent to members of other professions—I haven't the list—and there were 200 replies received. I ought to say, perhaps, the reason why that circular was sent was that the Commission found it almost impossible to hold a public reference and examine in detail various 1475

1476 experts, as to these different forms, for several reasons, one of which was, in the first place, that the time consumed in such a proceeding as that was one which some of us could not certainly give to it; in order to do the thing properly it would take from six months to a year. The other was the expense which the State would incur. We did not feel justified. Therefore the circular was deemed to be the most expedient way. Let me say, in answer, that of the 200 replies received 1477 to that 81 were opposed to any change: they were in favor of hanging. There were 119 who were in favor of something else besides hanging.

Q. But nothing polled as high a vote as hanging—no one of these particular methods polled as good as hanging?

A. There were 81 opposed to the change, and then these others; there were 119 in favor of various methods, but there were 75 that were in favor of electricity.

Q. So that it stood 81 for hanging, 75 for elec- 1478 tricity? Not 119 scattering?

A. Seventy-five for electricity, and there were 119 in favor of some other method besides hanging—they did not believe in hanging, and then there were 75 favored electricity.

Q. So that you had: hanging 81, electricity 75, and the rest scattering of the 200?

A. Eighty-one hanging.

Q. Electricity 75 and the rest scattering of the 200?

1479 A. Yes, that is the understanding; that is the statement made by my colleague, Mr. Hale.

Q. Mr. Gerry, what was there before your Commission, before the issue of this circular, that brought the question of execution by electricity before you?

A. What was there before our Commission?

Q. What evidence—what facts or knowledge were there that caused you to consider electricity as a means by which the execution of a human being could be accomplished?

A. That matter was brought before our Commission and suggested more expressly—more particularly —by one of its members, Dr. A. P. Southwick, who at the present time is in Europe. He had for six years, I think, previous to the time of the Commission, as he stated, examined the subject of electricity from a practical point of view with a great deal of care. 1480

Q. Then it was Dr. Southwick that brought that up?

A. He presented it. 1481

Q. Did you have any knowledge of it yourself about that time?

A. No, excepting in a general way.

Q. You had only the knowledge that we had about it?

A. Yes, sir.

Q. You knew that some people had been killed with it?

A. Yes, sir; I believe so.

Q. You did not know whether the human body was a conductor, or whether it was the saline fluids? 1482

A. I simply judged that when a man took hold of one of these arc lights he dropped dead.

Q. Did you know that?

A. Simply from reading it.

Q. Did you have any idea that where a man took hold of these arc lights he invariably fell dead?

A. I do not remember any case where he did not.

Q. Isn't it a matter of fact that you would not be likely to hear of any case? 1483

A. I judged simply the cases I had heard of.

A. You felt there was something potent about electricity worth while looking into?

A. Yes, after one of my colleagues suggested it.

Q. Did Dr. Southwick state to you in any way—perhaps I hadn't better ask that—but was it brought before your Commission by Dr. Southwick?

A. By Dr. Southwick; yes.

1484 Q. And it was on account of representations made by Dr. Southwick that you included electricity among the number of methods which you thought it would be feasible to adopt?

A. Certainly.

Q. By the statute?

A. Certainly.

Q. Mr. Gerry, you sent these circulars out and you received these replies, in which seventy-five persons said that they favored electricity? 1485

A. Yes.

Q. Did they know anything about it—do you know these seventy-five?

A. I think so.

Q. Why do you think so?

A. In the first place, one of the prominent replies was—a section of it is contained in our report—so far as my individual judgment is concerned it came from a man that I consider the greatest electrician of modern times. 1486

Q. That was Mr. Edison?

A. Thomas A. Edison.

Q. Did you consider he was the greatest medical man?

A. No, the greatest electrician.

Q. Even then did you consider he was a good authority to tell you what would destroy human life?

A. Yes.

Q. You considered that he was? 1487

A. Yes, of electrical currents; I put two questions to him and he satisfied me.

Q. Was that all you know about it, Mr. Gerry?

A. No, excepting in a more general way.

Q. Can you tell us how, for instance—

A. I ought to say, perhaps, in addition, that he was not the only expert; there were a large number of others.

Q. Who are they?

A. They are in the report; the principal ones are 1488 mentioned there.

Q. That is what I fail to observe.

A. Oh, no; you will find quite a number of opinions there; you will find a summary on that subject on pages 86 to 90 inclusive. These were only some. I ought to state of those that were selected that the Commission did not annex to this report all these voluminous letters. We got a letter from a gentleman in Massachusetts which was an elaborate essay on the 1489 subject, explaining the reasons why it should be adopted and containing a very large amount of matter, and we found that if we printed this entire matter that we received we would have a mass—that this would be entirely too much to incorporate in a report; we wanted to prepare a report.

Q. Mr. Gerry, on page 86, to which you draw my attention, I find the following, which appears to be a letter from Dr. Brill, and which you set forth here under the head of "Electricity." 1490

A. Yes, sir.

Q. The following language occurs in it: "But my greatest objection to electricity is that its action is a very variable one."

A. Yes.

Q. This follows some description of the question of expense?

A. Yes.

Q. (Reading) "The following from the *Philadelphia* 1491 *Ledger*, March 2, 1886, is reported, and is but a repetition of a similar accident occurring in this city some time previous, where two men, working on the same line of a Brush arc light, were suddenly stricken down by an unlooked-for completion of the electrical circuit, the one being immediately killed and the other escaping with but a burn of the hand and wrist. Very little is known about the effects of strong currents of electricity, such as a lightning stroke or the current

1492 from an arc-lighting dynamo upon the physical organism. People who receive shocks from such a current are generally killed, as Daniel Cogh was in this city last Saturday and Myers Patterson at Lynchburg, Monday, yet others almost unaccountably escape. A workman at Liverpool was handling a crane, which came in contact with an electric lamp, and the current passed through his body. He was made insensible by the shock, but soon recovered, although the intensity
1493 of the current was such that his hand was burned and the sole of his foot badly charred. His stocking was also burned, but his shoe was uninjured. You are aware that lightning may strike an individual and not kill, and no dynamo ever made can produce a shock as great, both in intensity and quantity, as nature's own manufacture. In fact, the atmospheric influences in reference to the human body, acting as a conductor, must be taken into consideration and guarded against. Yet they are beyond our con-
1494 trol, for the same amount of electrical discharge acts differently on different occasions. In fact, some persons have a special power of repelling the baneful influences of such a discharge applied to their bodies. This must, of course, reside in special differences in their morphological structure, so that the effect of an electrical shock applied is a very indefinite one and cannot be depended upon to produce more than a momentary convulsion, with or without loss of conscious-
1495 ness in some and death in others. If lightning does not always kill, surely we cannot expect death to result from artificial electricity."

Q. That was a letter that was received by your Commission, Mr. Gerry?

A. Yes, sir.

Q. Now, I also find, on page 87, the following: "The following extract from the *Lancet*, appended to a letter from one of the Justices of the Supreme Court, who is in favor of adhering to the present method, is also presented."

Q. May I ask what justice that was? Is there anything confidential about that? 1496

A. I do not think that should be stated. I have no objection to stating it, but the learned Justice might.

Q. I shall not press the question, Mr. Gerry.

A. I have no objection, as far as I am concerned, but it is a mere matter of delicacy.

Q. I can see the force of it.

A. That is the reason why our Commission purposely omitted the name of the learned Justice. 1497

Q. This, which I am now about to read on page 87, in the inverted commas, is not the letter of the Justice, but is the extract from the *Lancet?*

A. I think so.

Q. You say this: "The following extract from the *Lancet,* appended to a letter from one of the Justices of the Supreme Court who is in favor of adhering to the present method, is also presented"?

A. I think that is an extract from his letter; I see the inverted commas there. 1498

Q. You say it is an extract from the *Lancet?*

A. I do not know. I cannot answer that question for this simple reason: You will observe there is one inverted comma on the fourth line of page 87, and there is another which closes that paragraph. Then there are two inverted commas which commence the next paragraph.

Q. We will read it: "Electricity is another agent selected. We doubt the possibility of applying this agent so as to destroy life instantly. 1499 We confess that, looking at the matter all around, we incline to think that hanging, when properly performed, destroys consciousness more rapidly and prevents its return more effectually than any other mode of death which justice can employ. It is against the bungling way of hanging we protest, not against the method of executing itself. That is, on the whole, the best, we are convinced."

1500 Q. And then, at page 88, your report proceeds to say —this, I presume, is the language of the Commission.

A. Yes, sir.

Q. "These and similar objections have been carefully considered by your Commission?"

A. Yes, sir.

Q. Then you had similar objections?

A. Practically at the same point; yes, from a number of other persons not so prominent.

1501 Q. But they were put forth with the same force?

A. To the same effect.

Q. And you say: "We cannot think that, from the fact that in accidental encounters with electricity it sometimes happens that the person exposed does not get the full force of the current, and thus escapes death; it follows that there is an uncertainty as to a fatal and immediate result where the electric force is directly and scientifically applied to a vital part of the body?"

1502 A. Precisely.

Q. Now, Mr. Gerry, how do you know that these parties did not get the full force of the current?

A. Which parties?

Q. You say where they escaped death—and your belief was that these parties who escaped death after the contact with these electric wires did not get the full force of the current in their bodies, and that was the reason they escaped?

1503 A. Because in every case where the party was killed, so far as we could ascertain from the medical experts who wrote to us on that subject—communicated with Dr. Southwick and the rest—the full force of the current was received.

Q. And how do you know it was not received in the cases where they recovered?

A. Because there was no case where the direct contact was made in that way, and in the other because in the instances where they did recover there was some evidence stated by professional experts to show that a 1504 portion of the current passed off. In other words, if I may state, it was simply this: There were cases which occurred, several of which were made the subject of inquests. Our attention was called to these, where a man, for instance, deliberately took hold of both portions of an electric current—an arc light—and the instant that he took hold of them every lamp on the circuit went out, and the man dropped dead. A man, on the other hand, who put only one hand on, and 1505 stood in a particular position, got his hands burned, but in no case, where the entire circuit was complete—absolute circuit was complete—was there a case where death was not the result, so far as we could ascertain. We then came to examine the number of deaths which occurred by these accidents, because we could not find a case where they had been resorted to intentionally for the purpose of suicide. Allow me to explain. I want to economize time as much as possible. We could not ascertain in any case that it had been done 1506 purposely, for the purpose of suicide. There were quite a number of cases where persons, who incautiously came in contact with the wires, were glued fast—stuck to it until they were dead, and they had to stop the dynamo. There were other cases where, for instance, the wire was cut, and what was called a short circuit by electricians, was produced, and the man tumbled dead, but in almost every one of these cases the current was a very powerful one, and death was 1507 instantaneous, so far as could be discovered by testimony given on the inquests, which we had notice of, and by the statements of the various electricians.

Q. Mr. Gerry, would you regard the statement of an electrician as to whether a body was in pain or not, competent authority?

A. That would depend upon whether it was—

Q. (Interrupting.) As to whether it was instantaneous, or whether it wasn't. Would you consider an electrician a competent authority?

1508 A. I see no reason why.

Q. Do you think an electrician knows anything about the human body?

A. I think he knows a great deal about it.

Q. Mr. Gerry, you would be surprised to learn that there are electricians who do not agree?

A. That to my mind would not indicate anything. I never knew two physicians who have agreed on any one subject.

1509 Q. Then you think that on account of their difference they are right?

A. Yes, sir; that is what I should say.

Q. And you think the doctors and the electricians develop the same capacity for difference—you think they both reach about the same standard of ignorance and lack of knowledge?

A. I do not wish to be disrespectful to the profession.

Q. That is not disrespectful.

A. The only profession which is certain is the law, 1510 as a matter of course.

Q. We understand that, and your idea is that the medical profession does not enjoy that exactitude, and that electricians ought to be competent authorities upon the construction of the human body and symptoms of death, and all that, because doctors disagree?

A. So far as they are affected by electrical currents, precisely the same way that the opinion of medical men is, to a certain degree, an authority upon elec-
1511 tricity upon the human body.

Q. Don't you know that electricians will agree, and have agreed: are able to measure and have reduced some questions of electricity to a degree of exact science—as, for instance, the resistance of metal?

A. Yes; that is what they state.

Q. You don't believe it?

A. No.

Q. You do not give them credit for the amount of knowledge which they claim to possess in regard to these questions—the resistance of metal?

A. Not to a certain degree; no. 1512

Q. You are skeptical, then, as to the knowledge electricians claim?

A. In these minor details; yes.

Q. What do you mean by that?

A. I mean when it comes to a question as to how many ohms of resistance there may be, or the particular method of determining the resistance—a question of mere machinery.

Q. A question of measurement, I should say; don't 1513 you know that all electrical science depends upon measurements?

A. Certainly.

Q. How could there be experiments of any value if you do not think their methods of measurement are reliable?

A. I do not think they are necessarily reliable.

Q. Then, you think that no experiment is worth anything as to the accuracy of which you are in doubt?

A. They might be of value. 1514

Q. Would they be of sufficient value that you would risk human life on it?

A. I don't think there is any question of risking human life upon a question of electricity, at all.

Q. Why?

A. Because it is a question of power.

Q. What kind of power?

A. I mean the amount of electricity.

Q. What is electricity? 1515

A. It is supposed to be a subtle fluid.

Q. It is supposed to be?

A. Yes.

Q. Do you believe it to be that?

A. I do not know.

Q. Do you know anything about it?

A. Mr. Cockran, I think my knowledge is about equal to your own—because the less you know about a subject the better you cross-examine.

1516 Q. I suppose I ought to accept that as a compliment?

A. It was intended as such.

Q. I ought to hand back the compliment by saying that you know very little about electricity?

A. If you were a judge, instead of a lawyer, I should appreciate that compliment better.

Q. After an execution has been made you think more will be known about it?

1517 A. I do not think anything more will be known.

Q. Don't you know, Mr. Gerry, as a matter of fact, that two persons working upon the same line—the same wire—and whom have received the same shock, one has been killed and the other has escaped with a burn?

A. That might be.

Q. Isn't that so?

A. I have heard it stated; yes.

Q. Don't you believe it?

1518 A. Yes.

Q. Isn't your information on that subject just as authentic as your information on other subjects?

A. To a certain degree, yes.

Q. I beg of you to answer me, if you will. Tell me why that is so?

A. Simply in certain cases the statements have been made to me personally, and in the other cases by reading it.

1519 Q. In the case of Dr. Brill, was the statement made to you personally?

A. No, that was a written letter.

Q. The letter was addressed to you?

A. Precisely.

Q. And you read the letter, and you had no doubt about the authenticity?

A. No doubt at all.

Q. Dr. Brill states a case in which he says that two men who were working on the same line of a Brush arc

light received apparently the same shock, one be- 1520
ing immediately killed and the other escaping with nothing but a burn of the hand and wrist?

A. Oh, yes; those are cases of accidental injury by electricity; but what the Commission here recommended was the placing of the subject to be executed in such a condition that the current should pass directly through him; or, as was suggested by one of my colleagues, Dr. Southwick, in the case—his original suggestion was not that an independent dynamo or 1521
instrument should be constructed for the purpose of inflicting death, but that in the case of Auburn prison, where there is an electrical plant provided with an arc light, it would be only necessary to run what an electrical man would call a "dead wire"—that is to say, run in a particular cell an arc-light wire, connected, or which could be connected at any time, with the dynamo. Then all that was necessary was to place the subject in such a position that that current would pass through him—in other words, that a direct cur- 1522
rent of that arc-light would pass through him and immediately cause death; and in regard to that I inquired of Mr. Edison what his view of the case was and he stated his judgment.

Q. You knew nothing about that yourself?

A. No, sir.; I did not.

Q. Mr. Gerry, had Dr. Southwick, do you know, ever experimented upon a human being in any way?

A. That I don't know. 1523

Q. Did you inquire?

A. He had made a number of experiments on animals.

Q. Did you ask Dr. Southwick, or inquire of him, what the extent of his knowledge was?

A. Oh, yes.

Q. Did the doctor give you the reasons why he concluded that an electrical current would certainly cause death?

1524 A. He did.

Q. In what way would it cause death?

A. He stated it would cause death by an instantaneous paralysis of the whole system.

Q. The instantaneous paralysis of the whole system?

A. A general paralysis of the entire nervous system, as I understood it—cause an instantaneous paralysis.

1525 Q. Did he tell you that as his judgment?

A. That is my understanding of it.

Q. He did not state that as a demonstrated fact, but simply that he believed?

A. He stated that as the result of his studies, his examination, and what he knew about it; and I naturally regarded the opinion of my colleague as entitled to very much consideration, as he was selected by the State to determine this question in conjunction with me.

1526 Q. In this case we have just mentioned the person received the whole discharge that Dr. Southwick had said would be fatal—the circuit had been completed, one man was killed and the other man was burned. Don't you consider that that was a subject that would throw doubt upon that information?

A. No, because, in those cases where death was accidental, there had been no deliberate effort made to secure a contact for the purpose of receiving the current.

1527 Q. Would it make any difference as to whether it was done accidentally or not upon persons, as long as the current was applied?

A. My belief was that the very moment the current was applied the man was killed; and when it was not completed and the man escaped he did not receive the full discharge—that the less contact there was the slighter the injury.

Q. Now, here is a case where they both received the

same current—one was killed and the other escaped 1528
with a burn?

A. I don't think the statement of that is correct?

Q. That is it?

A. I don't think that is it.

Q. What evidence have you got as to the statements of fact upon which you acted? Have you any more evidence than you have right here where the men have died?

A. We had the cases where the men were actually 1529
killed.

Q. How do you know that? What evidence of an actual killing did you have.

A. We had the statements which were contained in the various articles in the public press containing a minute detail of the matter; and we naturally concluded that, however versatile the press might be, it was strange that they should lie constantly, where every one gave an account in different language to the
same effect. 1530

Q. Why did you reject this particular instance that I have mentioned which was published in exactly the same way?

A. I don't think it was published precisely in the same way.

Q. Pardon me, but I would like to ask you this: Have you got any distinct recollection upon the subject as to why you rejected this particular statement of
fact? 1531

A. Not as to this particular one; no.

Q. You realize, don't you, that in all experimental matters any failure in any particular instance throws doubt upon the experiment?

A. Yes, if the experiments were conducted.

Q. That is the fact?

A. Yes, certainly.

Q. Now, all the facts that you had before you were by accidental contact with wires?

1532 A. Yes.

Q. You had none of deliberate preparation?

A. None on human beings.

Q. Here was another case of accidental contact with wires, just as good as any others?

A. I don't understand you—"just as good as any other."

Q. Wasn't it just as good a test of the power of the wire—the accidental contact—as any other?

1533 A. No.

Q. Why not?

A. If you take an arc-light wire and insulate the man so that the current cannot pass off of him, and deliberately pass the current through him, electricians inform me that if that current passes through him, and if it is ordinarily intense, 2,000 volts they mention, which is, I believe, what is ordinarily used on an arc-light wire, that instantaneous death must result, and always would result.

1534 Q. What physicians have ever told you that?

A. No physician; I do not remember a physician. I am speaking of electricians.

Q. And your whole knowledge upon the effect of this power of the electric current on the human body is based upon what electricians have told you?

A. Upon what electricians have told me, and also the effect that the electricity had upon them. It acts upon the system, from what medical men have said.

1535 Q. Have you got any medical testimony as to that; that if it was under the control of humanity, so that it could be scientifically, as you say, applied, it would be certain to produce death?

A. Yes, I think there are a number of physicians, which are given in the book.

Q. Did they state that as a matter of knowledge or as a matter of belief? Did any of them claim to have any experimental knowledge of their own on it?

A. Well, it is a question of belief.

Q. Did any physician claim to speak from demonstrated knowledge, or simply from belief—deductions based on other experiments? You know the difference; you understand my question? 1536

A. I think it was always a case of belief, if I remember right.

Q. Deductions based upon experiment on other animals?

A. Precisely, on the ground that medical science has never made any experiments except on other animals. 1537

Q. No experiments on human beings?

A. That is so. You will find the cases where inquests have been held and the statements of medical experts taken—medical experts have testified as to their views.

Q. I want to know if there were any experiments conducted on human beings for the purpose of ascertaining whether they would be killed or not?

A. Not that I know of. 1538

Q. You have accepted the statements of electricians upon what would cause death?

A. As to the intensity of the current, precisely.

Q. And as to the current?

A. Yes.

Q. I ask you now: Can you tell me how the electrical current would cause death: precisely how it will act on the human system?

A. No, I cannot tell you, but I can state what they said. 1539

Q. You have told us that about paralysis?

A. Yes, sir.

Q. Don't you think that is a good deal of gibberish?

A. No.

Q. Do you think that that conveys any meaning to medical men—"the entire paralysis of the system?"

A. As to what meaning it conveys to a medical man I am not able to state.

1540 Q. So that you cannot say as to whether it is gibberish?

A. I do not know what you mean by "gibberish."

Q. Gibberish is imposing to the mind of the ignorant, but it conveys nothing to the ears of the intelligent.

A. I do not know what you mean.

Q. Now, Mr. Gerry, isn't it a fact that in every instance where these deaths have ensued from sudden
1541 contact with wires that death has been caused by shock where it has been sudden and quick?

A. I am unable to state that except as the result of what has been stated on inquests.

Q. When you investigated ancient punishments, you knew pretty well where you were, didn't you? You knew exactly what organ of the body was going to be affected?

A. Oh, no.

Q. I thought we went all over that, and had agreed
1542 upon it?

A. We did. Now you are asking me a question as to my knowledge of it.

Q. Surely you believe what you read?

A. In that way. There are certain ones that you have stated. Why don't you repeat your question as you did at the outset.

Q. Even in those cases you knew pretty well what the consequence would be?

1543 A. The consequence was death occurred from exhaustion and other things. In my report there is some testimony as to that.

Q. You knew what pains would rack the body pretty well; you knew what would be affected? As you examined each punishment, you knew precisely what would be done to the body?

A. Yes.

Q. Under this punishment that you have recommended, can you state anything that would happen to the human body?

A. I should judge, from what I know, from what I have seen in the case from one analagous—I satisfied myself about that matter in that case. It was in the case of an electrical experiment which was tried upon a calf. 1544

Q. I mean upon human beings.

A. The law did not permit experiments with human beings.

Q. You think that is coming?

A. Oh, no; I do not think there should be any doubt about it. 1545

Q. When you had ninety-one that took it, how many escaped?

A. I do not know.

Q. That is the reason in the case of ninety-one, the greater part of them escaped?

A. That is a question of logic.

Q. Assuming that five men are exposed to a current and that four are barely insensible and one dies, would you consider that a decisive experiment as to the power of that current upon human beings? 1546

A. Not necessarily.

Q. Now, in order to ascertain the value of your 91 deaths which you claim have occurred by contact with electric wires, wouldn't it be necessary to know how many persons had come in contact and escaped, or whether any did escape?

A. Not necessarily, excepting they came in contact with the wire under the same circumstances. 1547

Q. Granted, under the same circumstances.

A. The point that I make is: They were not under the same circumstances.

Q. I will put in the words "under the same circumstances." Would it be necessary for you to know how many had taken it without serious harm in order to ascertain the value of the experiments, if any had taken it without harm?

A. Yes, if you can do it, but I do not see how you can.

1548 Q. I understand that precisely, and that is the reason I am somewhat surprised at the character of the law.

A. I do not see it at all.

Q. You say that ninety-one persons died from contact with electric wires? Where did you get that information?

A. That information was gained from a collection of cases in the newspapers, a large number of 1549 which resulted in inquests, in which the question was judiciously submitted to the juries as to the cause of death, and the juries in the cases, as I remember, found, as matter of fact, that death was caused by the application of electricity.

Q. Do you consider the verdict of a coroner's jury as binding on anything or anybody, Mr. Gerry, in the ordinary transmission of the law?

A. It is simply an illustration of the intelligence of the citizens who compose the jury and as to the voice 1550 of the people. Under those circumstances the verdict of an American jury is considered as conclusive.

Q. Is the verdict of a coroner's jury conclusive?

A. No, not necessarily conclusive?

Q. Is it by that process of ratiocination that you arrive at the conclusion that death can be caused by an electrical current?

A. Not at all; I do not base my opinions on a cororner's jury.

1551 Q. Mr. Gerry, we want to go back to see precisely what the character of your information was at the time this report was made? Did you know, at the time this report was made, that ninety-one persons had died?

A. Not the exact number.

Q. You did not know how many persons had escaped after contact with electric wires?

A. I did not.

Q. You never took any steps to ascertain that the wires had proved fatal to less than a third of the number that had come in contact with them?

A. No. 1552

Q. You did have before you the case where two men took the same current—precisely the same current?

A. As stated.

Q. You had no reason to doubt that?

A. I did.

Q. What was it?

A. If they had both taken it, it was impossible for anyone to determine whether both had taken it under 1553 the same circumstances or not.

Q. If both persons had their hands on the same wire and the wire was operated by the same dynamo?

A. That doesn't follow. If the man was insulated expressly for that purpose, and you put two persons together insulated for that purpose, and the one was killed and the other was not, that would go to prove a very different state of things.

Q. You infer that the men were standing on anything but flags? 1554

A. I do not know what they were standing on.

Q. Assuming they were standing on precisely the same conditions—the one dies and the other escapes—what effect would that have, in your judgment?

A. We will assume that they stood under precisely the same conditions?

Q. Yes.

A. And that it was not accidental?

Q. Whether it was accidental or not, that would 1555 not make any difference; electricity doesn't know whether it is accidental or not.

A. It depends, of course, upon the question of contact; I do not know what the contact was.

Q. In all your answers now you simply give me the information that you received from electricians?

A. Yes, sir; certainly.

Q. Without the slightest claim of knowledge on your part?

1556 A. Yes, sir.

Q. It is simply a matter of opinion?

A. Certainly.

Q. Mr. Gerry, you are familiar, or do you know whether natural lightning, nature's own manufacture, as it is stated in your correspondence with Dr. Brill, is more or less powerful than any artificial current which can be generated by human means?

A. I am informed by electrical men—electricians—
1557 that it is, of course depending upon volume, in some cases more powerful.

Q. In some cases? My question was: Can any electrical current be generated by human means—any current generated by artificial means or put in activity by artificial means—so as to equal the intensity of a stroke of lightning?

A. That I am unable to answer; it is a question of a scientific nature.

Q. Well, let us put this to you: Do you think that
1558 by any current generated by artificial means you could knock this building down?

A. Any electrical current? I should doubt it very much.

Q. Do you think you could, by any current generated by artificial means, split that desk (indicating)?

A. I don't know about that.

Q. Could you—in the language of a gentleman that is here—shatter a broomstick?

1559 A. I don't know; I haven't seen that tried on broomsticks.

Q. Anything analagous to that?

A. Yes; I saw it tried on a calf; it was more effectual.

Q. It was only effectual as to the calf—but as to you, I mean. Why do you say it was more effectual on that, seeing you did not have an opportunity to compare the two?

A. I did not say it was effectual on me; it was effectual as far as the calf was concerned.

Q. How, without a comparison; you did not compare the two? 1560

A. I did not think it was necessary to have a comparison. I saw the electricity supplied and I saw the calf fall dead.

Q. Now, Mr. Gerry, can you tell us whether by artificial means a current of electricity can be generated or—I do not think you can use the word created; can you, in regard to that, Mr. Gerry?

A. Electricians usually use the word "generated," 1561
I believe—I think so.

Q. But from what you know about it—I suppose I should say a current of electricity put in a state of activity; could any such current, born of human invention, tear the clothes off a man's back?

A. I do not know.

Q. Now, Mr. Gerry, assuming that, no—you never heard of anybody being able to generate any current strong enough to do that?

A. I have not heard of its being done yet, but 1562 whether it will be or not I do not know. I should suppose it might be.

Q. That is, you have a very great confidence in electricity?

A. I have more confidence in the ability of certain electricians—Thomas A. Edison.

Q. But even with your idea of Mr. Edison, he has not been able to develop any dynamo which will do that?

1563

A. He has not yet; but he might before he gets through. I think he is fully competent to do it.

Q. You think he is competent?

A. Yes.

Q. Why does he hesitate?

A. I don't know.

Q. Why doesn't he do it? I merely throw that out as a suggestion. I hope to see him on the stand before this is over; Mr. Poste or Mr. Tabor promises

1564 us that he will be on the stand. Mr. Gerry, assuming that a stroke of lightning was sufficiently strong to tear the clothes from the back of a person, and did tear the clothes from his back, and yet the person escaped without serious injury—would that have any effect upon your judgment as to the power of electricity?

A. As to the power, no. It would be a demonstration of the power.

1565 Q. Would it be a demonstration of the certainty of electricity to kill a human being?

A. No; that is another part of speech.

Q. Assuming that a thunderbolt which was sufficiently powerful to tear the clothes from a man is a dozen times stronger than any current that could be generated by artificial means, and that a person received such a stroke and lived—would that cast any doubt upon your opinion?

A. I shouldn't believe it.

1566 Q. You wouldn't believe it?

A. No.

Q. You don't believe, then, that such a thing has ever occurred as that—a person receiving a stroke of lightning and the clothes being torn from the back, and he escaping with his life?

A. No, I shouldn't believe it.

Q. Should such a fact be demonstrated to you would it cast doubt upon the conclusions which you have reached?

1567 A. No.

Q. Why, Mr. Gerry, your conclusions are now based upon a conception of electricity which causes you to reject it?

A. Not at all.

Q. Which caused you to reject as impossible the statement which I have made?

A. Not at all.

Q. Why can't you believe it?

A. Because the method of the application of electricity 1568
by lightning is something nobody knows anything about.

Q. But if it shows a result so powerful that it can tear the clothes off a human being's body, that is stronger application than has been shown by scientific means. Now, assuming that to be so—assuming that it shows a power a thousand times greater than any artificial current—if a person receiving such a shock
that the result of it is shown by the tearing of his 1569
clothes from his back in that way, would you consider that would cast any doubt.

A. I shouldn't; because the circumstances under which that current was received might very materially alter the circumstances of the case.

Q. It might?

A. Electricians have explained that to me, for I have inquired on that identical subject.

Q. Let me see what they have explained to you.
You said a moment ago that you did not believe it? 1570

A. I said I didn't believe any such case occurred. Electricians explained to me that when a person has been struck by lightning—that is what they have explained to me—I suppose I have answered your question. But when a person is struck by lightning, as to whether or not the lightning proves fatal depends entirely upon the atmosphere surrounding the man, where it struck, and upon the condition of the man,
as to whether he is wet or dry, and it depends upon 1571
the fact of the direction of the lightning and the amount of the electrical fluid which passes from the sky.

Q. We agree to that. But you do not claim that the electricity has any particular regard for persons?

A. No.

Q. And the lightning bolt, when it strikes an object, is the same, whether it strikes a man or a board?

A. Yes.

1572 Q. If the bolt be sufficiently strong to shatter a tree, you would have a demonstration of its power?

A. Yes.

Q. And if that same bolt should strike a man and not kill him—

A. I wouldn't believe it.

Q. The reason you wouldn't believe it is you wouldn't believe it could be possible?

A. Not at all. But because I do not believe that
1573 you can determine as to whether there was the same quantity of lightning in the two currents.

Q. Why?

A. I should say, if you could see the same effect you could conclude upon that.

Q. If you could see the same effect?

A. No, I should argue that there is a difference in the quantity of the bolt.

Q. Suppose you see the same effect?

A. You don't see the same effect.

1574 Q. If from the same results you could see the same given horse-power indicated by the thunderbolt?

A. If you could see the horse-power, I give up.

Q. The horse-power can be determined?

A. I doubt it.

Q. Mr. Brown has testified to it?

A. Mr. Brown is a very able man, but I should be inclined to doubt it.

Q. That is a thing you relegate to him?

1575 A. Yes, that is a thing I stated before.

Q. Now, Mr. Gerry, when you see the effect of a thunderbolt, you have got something to estimate its power—what power it had?

A. Yes, you have got something to show that there was some power exerted.

Q. As the result of a thunderbolt, you have some means to show the power of your thunderbolt?

A. Not necessarily; I don't know how you are going to calculate that.

Q. I don't mean to say that you can calculate to an absolute certainty, but you have got an indication of its power? 1576

A. You have got an indication of its power?

Q. I ask you, if you see the effect of this bolt—the effect of the thunderbolt—if you find in that an evidence of a greater power than anything that can be generated by artificial means?

A. I should judge so—very probably.

Q. Wouldn't you be convinced about it? 1577

A. As to whether an electrical machine could be constructed capable of showing such a result, that is a question for Edison.

Q. Have you any idea as to the extent to which artificial currents can be generated: as to their power as compared to lightning?

A. No.

Q. Do you think that they could tear, as I have put it to you, even a piece of cloth?

A. Yes. 1578

Q. You think it could?

A. Certainly: I took up a paper the other day, and read an account on the same side of the page where there was a description of this investigation—it was in the *Herald*—electrical wires had got in confusion, and half a dozen firemen were knocked down and a large number of persons injured, horses injured in various ways; simply because these various wires had got entangled. 1579

Q. I ask if you have ever known of a piece of cloth being torn?

A. A piece of cloth?

Q. Yes?

A. I don't remember seeing any experiment on cloth.

Q. You never saw anything that could tear a shoe off a person's foot, a piece of leather?

A. I have heard of that being done by lightning.

1580 Q. Didn't that indicate a greater power than can be generated by artificial means?

A. No.

Q. Mr. Gerry, do you think that an electrical current can be generated strong enough to throw a human body say five feet from where they found him? Do you think it could give you a shock while your body was inert, and, without any will-power of your own, it would throw your body across a room four or five feet?

1581 A. I don't know.

Q. Would you be surprised to learn that a person received such a shock by lightning, that he received a shock of lightning that stripped the clothes off his back and threw him a distance of four or five feet, and that he escaped with his life?

A. I have heard those stories.

Q. Would you believe it?

A. I should view it with a great deal of skepticism.

Q. And then your conception of electricity is such 1582 that you view all these matters with doubt?

A. In cases of lightning I do not think you can tell anything about it. The only man who knew anything about that was your friend, Benjamin Franklin.

Q. He didn't know, did he?

A. No; he got the key, and could not find the keyhole. Edison has found the keyhole.

Q. And you think Edison somewhat of an oracle, do you not?

1583 A. Yes.

Q. You think he knows more about it than anyone in the United States?

A. Yes; and I haven't seen any foreigner that knows as much about the subject.

Q. And when he speaks upon a question, even the taking of human life—

A. I would say the same of him as I would say of you on an opinion of law, if you occupied a judicial position.

Q. And it was in that way that you came to report that bill? 1584

A. Yes, sir; that was one of the main reasons.

Q. That was the real reason?

A. In view of the fact that his views were usually agreed in by the other experts.

Q. And those others are the ones you have mentioned in this list?

A. Yes.

Q. And then you had a number of persons who took the other view? 1585

A. Yes.

Q. And you finally decided that where Edison spoke there was no room for doubt, and you recommended the bill?

A. I certainly had no doubt after hearing his statement of it.

The Witness:

I should like to have this list of books inserted in my testimony. 1586

Mr. Cockran:

I think that you have mentioned them fully, and the document itself only indicates a research.

The Witness:

I have the list and I will leave it with the Referee.

The report of the Commission to investigate the most humane method of carrying into effect the death penalty in criminal cases is offered in evidence by counsel for both parties, and marked "Exhibit D," July 18, 1889. 1587

By Mr. Poste:

Q. Mr. Gerry, is there anything you would like to supplement to anything you have already stated in regard to this matter?

1588 A. I can hardly recall anything, excepting—no, I think not. There were some seven laborers which we examined—I think I have already stated that. I do not recall anything at the present time.

DR. LANDON CARTER GRAY, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

1589 *Direct Examination* by Mr. Cockran:

Q. Where do you reside?

A. At 6 East 49th street.

Q. What is your profession?

A. Physician.

Q. You are connected with some of the institutions of learning, I believe; are you not?

A. Yes, sir.

Q. What are they?

1590 A. I am professor of nervous and mental diseases in the New York Polyclinic Medical School.

Q. Doctor, have you given attention to the effect of electrical currents upon the human system?

A. Yes, sir.

Q. Is that part of the subject matter of your professorship?

A. Yes, sir; I have given electricity attention in my practice these sixteen years, and I have lectured upon it for twelve or thirteen years.

1591 Q. You have, as I believe, or—as I assume Mr. Poste won't object to my putting the question in that form—you have, I suppose, kept pace with electrical research during that period?

A. I think so, sir.

Q. Is there any means known to science by which a current of electricity can be administered to a human being which would be certain to produce painless and immediate death?

A. In every person to whom it was given? 1592

Q. Yes.

A. No, sir.

Q. Why do you say that, doctor. Will you explain why?

A. I say that for a number of reasons.

Q. Just describe them, so that we will know.

A. I say that for a number of reasons. In the first place, the experiments that have been made upon animals with artificial currents have been very contradictory, 1593 and the experiments that have been made by lightning, natural electricity, have been equally contradictory; for instance, if I may cite some cases—

Q. Yes, that is what I would like you to do.

A. For instance, there is a case of a man reported by Dr. Terry, of Utica, in 1888; who was suspended for one hour by both feet to an electrical line, and he was unconscious for some little time afterward—about an hour afterward, and then recovered fully, and had no symptom of shock, went about his business, 1594 and simply had a slough of the flesh where the wire had come into contact with it.

Q. Was his condition of unconsciousness the condition of apparent death?

A. Unconsciousness.

Q. But he showed signs of life?

A. From the description I am not able to state that. I took it from the *Medical Journal*.

1595

By the Referee:

Q. Was there anything stated as to the number of lights?

A. No; nothing was stated. I merely mention the fact that the man was suspended for one hour by both feet from the wire—and there was sufficient current to render him unconscious, and then he recovered and had no further symptoms.

1596 By Mr. Cockran:

Q. Did you say by both feet?

A. By both feet.

Q. So that he was suspended head downward?

A. Head downward. Now, on the other hand, you take some cases such as we have seen. There was a case that occurred at the Marquis of Salisbury's residence, where a line had 116 lights, 16 horse-power, Brush light; a man caught hold of two wires and
1597 dropped dead without a sign, or remark, or a cry—without a cry. Then again, there was a man in Aston, in Birmingham, who caught hold—he was a band-master, he was master of a band, I believe—he caught hold of a wire supplying all the lamps in the theatre and the recreation grounds, which were very large—it doesn't state more definitely what the quantity of electricity was. He pulled the wire down with his weight, was immediately rendered unconscious,
1598 never rallied, but did not die for forty minutes. Now here is another case in Clydebank, in Edinburgh, where a wire of a Brush arc light came in contact with an endless chain, and through that a man felt a shock. He was doubled up—that is, he was brought right up. He had hold of it with his hand, and he was brought right up as if he were working on a trapeze. Then he became unconscious, and was held up in that condition for three or four minutes before they could turn off the current. He became conscious in one hour,
1599 and gave a distinct account of the whole thing. He was able to tell the first sensation of the feeling that he was drawn up and then passed into unconsciousness.

Q. He was able to give an account of the sensations for how long?

A. Until he became unconscious, of course. He became unconscious in a short time. Of course, nobody was there to measure the usual time.

By the Referee : 1600

Q. He became unconscious in a short time?

A. He became unconscious in a short time, but he described his sensations up to the time he became unconscious. He was held on that wire for three or four minutes. When he was taken off he had a slight blistering of one side of the cheek and one side of the neck; and the singular point was that there were two inches square on the sole of his foot that were completely charred, completely carbonized; and the stock- 1601 ing completely charred and carbonized, where the electricity had passed out, so that he must have had a pretty powerful current to have doubled him up and rendered him unconscious and made a burn two inches square on the sole of his foot and stocking. And yet, after all that, he had a slight feeling of general shock, and a feeling of heat in the abdomen and chest and the usual dizziness. It all passed off within 24 hours, and he had a slough formed on the sole of the 1602 foot.

By Mr. Poste :

Q. Won't you please give, doctor, your authority in that case?

A. The authority for that is to be found in the *Lancet* of February 13, 1886. The case of the bandmaster, the one just before, is to be found in the *British Medical Journal* of January 31, 1880. The Hatfield 1603 House case is to be found in the *British Medical Journal* of December 24, 1881.

Q. The Birmingham case, that was what, doctor?

A. *British Medical Journal*, January 31, 1880. In the case up here in Utica, it is found in the *North American Journal of Homeopathy* for December, 1888. Now, to go on—

1604 By the Referee:

Q. Let me ask one single question, doctor. In each of those cases, they were reported in scientific journals?

A. Of high standing.

Q. By medical men?

A. By medical men.

Q. For the purpose of giving scientific information?

1605 A. Of course, that is generally the object of medical journals.

Q. I am speaking of these cases?

A. Yes; I do not know that I understand you. It was for the purpose of giving scientific information on the action of electricity?

Q. Yes. In other words they pretended, in giving these statements, to give them with scientific accuracy?

A. With scientific accuracy, but with no purpose
1606 in view, mind you; that is, there was no question at that time of execution by electricity. They reported them as facts simply. Now, when you come to the question of lightning there is a case reported in—these cases are found in different medical journals, but I get a number of them out of the "Medical Jurisprudence" of Mr. Tidy. This one is given on page 517.

By Mr. Poste:

1607 Q. Tidy's "Legal Medicine"?

A. Tidy's "Legal Medicine;" yes. The man was milking a cow; the cow was killed, and the man was severely burned from the right hip, shoulder, and also a short slough, but his arm was not injured, and he had delirium and what is called inflammatory fever for seventeen days afterward. Now, there is a remarkable case reported in the same book, on page 519, of a man who was standing at the foot of a tree, and a bolt of lightning struck him. He was hurled six feet, and

then he lay on his back stark naked, his clothes 1608
stripped off of him, and they were strewn along the
ground for a distance of six yards, and he was heard
yelling for help, and he was perfectly conscious
throughout the whole affair, and he gave a description of the sensations as if he had been struck a very
severe blow. Now, a stroke of lightning that will
throw a man six feet, leave him stark naked, strip his
boots off, and yet leave him perfectly conscious, perfectly aware of what was being done, certainly shows 1609
the difference in the effects of electricity. And I was
told yesterday, in my office, by a gentleman from Kentucky who is under my care, that a very similar case,
almost identical in details, had occurred recently in
Henderson, Kentucky. Now, a case is reported in the
same book of Tidy, page 514, of a man who was
struck by lightning and had, as a result, paralysis of a
lower limb, a paralysis of the bladder, deafness, difficulty in articulation, difficulty in swallowing and a
metallic taste in the mouth, and yet in half an hour 1610
the lack of feeling was gone, the paralysis of the bladder was gone in 24 hours, and the paralysis of the
lower limbs in four days.

Q. Where is that case reported?

A. That is reported in Tidy's book, page 514; so
that here was a very serious degree of paralysis lasting
four days and not killing the man. Now, a Dr. Eulenburg, who stands among the highest authorities
in Germany, reports a case of a man in Stettin; this is also given in the same book, page 514, 1611
Tidy. He was rendered unconscious for half an hour,
then he had a total paralysis of the left arm and leg,
which was very marked indeed, so that he could not
move a muscle. He had paralysis and the common
sensations, and a muscular sensation, and with that he
had severe headache, sleeplessness, dizziness, insomnia,
vertigo, slight muscular tremors, constipation, and retention of urine for a few days. After ten months he improved, but the arm was in the same condition, except

1612 that he could move the fingers and thumb; then there was a lack of nutrition of limbs, both impaired. After seven months of galvanic treatment he became nearly well, so that that man was paralyzed for seventeen months by a stroke of lightning and not yet killed. Now, of fifty-four cases which Tidy collects of being struck by lightning there were twenty-one deaths and thirty-three recoveries. Of thirteen deaths, where these points are stated, the death was in seven imme-
1613 diate, one death was after a short interval, another death was on the second day, two deaths on the third day, and one death on the ninth day. Now, these are some instances, in the first place, to show the uncertainty of the electric current in its effects upon man. Besides that, Dr. Richardson, of England, who experimented with different sparks for the purpose of killing animals, found that he could obtain a very fatal spark —one particular spark generated in a particular way —which was very fatal. But at times that spark would
1614 simply paralyze the animal, and at other times it would kill it instantaneously, and Dr. Richardson was not able to determine why that was so. Now, then, we will come to the resistance—

By the Referee:

Q. Where are his observations and experiments reported?

A. They are quoted in the "Societe de Biologie;"
1615 I will give you that: I have the accounts of them. Now, in addition to that, the resistance of the human body is not a matter of recent investigation, as would seem in the observation of some gentlemen here; it has been studied for forty years, and it has been very thoroughly studied in the last ten years by German physicians and Dr. Sachs.

By Mr. Cockran:

Q. There was a statement made here by a gentleman named Harold P. Brown, who claims to be an ex-

pert in electricity, physiology and other things, that 1616
the average resistance of the human body was 2,500
ohms. Does that convey any sense to you, doctor?

A. Well, sir, the average resistance of the human
body is not known. The researches, the most authori-
tative researches, are those of a German by the name of
Jolly, and he has written a great German book upon
the subject, published in 1884. He found in some
cases that the resistance of the human body was 600,-
000 Siemen's units—that is about 550,000 ohms—and 1617
that in other cases it went down as low as 1,500 or
1,600 ohms.

Q. Fifteen hundred ohms?

A. Fifteen hundred—1,000—went down very low.
Now I forget the lowest point. He found in one case,
to see how it will vary, how accurate his experiments
were—he wanted to compare the resistance of the skin
with the underlying tissues, so he removed a portion
of the skin, and then he passed the current through
the underlying tissues; he found that the underlying 1618
tissues had a resistance of about 640,000 ohms, or Sie-
men's units—there is a little difference. The resist-
ance of a piece of skin and over the underlying tissue
has a resistance of 96,000 ohms, so that a resistance of
2,500 is entirely too low—and then, it varies enor-
mously. It will vary with the passage of the current
in a very short time, so that it is not known what is
the average resistance of the human skin. It must
vary from person to person. It has been shown to 1619
vary in some diseases, and it certainly must vary at
different seasons of the year. I have seen in my own
practice where at certain seasons of the year people
would come in, and every person who would come in
would have an enormous dimunition of the resistance,
and then another day they would come along and the re-
sistance would be about normal, so that you cannot
tell anything about it, everything being about the
same. I have never been able to determine, except it

1620 was some atmospheric condition. Now, because of those reasons, because of the uncertainty of the effect of electricity, because of the varying resistance of the human body, and, moreover, because of the fact that is recommended in this report—because of the fact that in this report a current of 1,500 ohms is recommended—

By Mr. Cockran:

1621 Q. Volts?

A. Fifteen hundred volts, I mean. I do not think that that current could be sufficient. Ohm's law—I do not know whether you know anything about Ohm's law—

Q. Mr. Brown has told us about that?

A. Ohm's law is simple. It simply says that the amount of current is equal to the electro-motive force divided by the resistance. Now, the electro-motive
1622 force, we will suppose, is entered in this report as 1,500 ohms. That is to be divided by 2,500 onms, which is given as the average resistance of the human body.

By the Referee:

Q. One thousand five hundred volts?

A. One thousand five hundred volts I mean as the current.

Q. You correct your answer in that respect?

1623 A. One thousand five hundred volts; that is to be divided by 2,500 ohms; that would make about three-fifths of an ampere. That means about 600 milli-amperes. Now, 600 milli-amperes is the current that is used by a specialist in women's diseases every day in the week, for the purpose of causing disappearance of tumors—for the purpose of killing fœtus that are born outside of the womb—extra uterine pregnancy, and, finally, some specialists in women's diseases claim that they give it

as the usual current through the vagina of a woman 1624
for these purposes. Now, assume if, instead of a resistance
of 2,500 ohms, you take a resistance of 96,000
ohms, or a resistance of 600,000 ohms, with 1,500 volts
only, the quantity becomes infinitesimal—what we
are giving every day; so that I do not see that from
our extant knowledge at the present day what current
will kill 100 men in a row. It might kill some of
them, might paralyze some of the others, might shock
some of the others. Then again, the personal equation 1625
comes in—there is a difference in the individual.
One man will be shocked by a policeman's billy and
knocked into immediate unconsciousness, and another
man will be pounded until his muscles are helpless
and will remain conscious.

Q. Now, speaking of the question of equation, that suggests this inquiry. The personal susceptibility to electricity varies, doesn't it?

A. Varies very largely; yes, sir.

Q. Now, as I understand you to say, the thing that 1626
will shock one man into unconsciousness may do nothing
more than torture another man, without him
become unconscious?

A. Yes.

Q. It is certain that any electrical current will produce even immediate unconsciousness in all cases?

A. I do not believe that we know now exactly what
current will be absolutely certain to produce unconsciousness
on any man in this room. 1627

Q. Any person here now?

A. Yes.

Q. Now, assuming that this arrangement described by Mr. Harold P. Brown is rigged up and arranged, and a man put into it, and the current turned on; if he don't die by shock, what is going to be the effect upon him as to pain?

A. If he don't die by the shock?

Q. I mean by immediate shock?

1628 A. He might become unconscious.

Q. Would he necessarily become unconscious?

A. That I could not state; that is impossible to state. He might become unconscious, and then he would not suffer pain; or he might not become unconscious and might simply have a shock—a general shock.

Q. What kind of a pain would it be, if any? Would he suffer pain until he became unconscious?

1629 A. I think he would; I think there are cases in which he would be likely to suffer pain.

Q. What kind of pain—excruciating or moderate?

A. I think at times he would be likely to suffer excruciating pain.

Q. Would that come from the burning, or what?

A. From burning and shock, both.

Q. Mr. Brown has testified that by turning on a hose or pouring water on a man at the point of contact, he would obviate the danger of burning from the wire. 1630

The Referee:

He did not testify to that. He said that by keeping a sponge saturated with water—constantly supplying water.

By Mr. Cockran:

1631 Q. How would he keep it saturated without a hose or something of that kind; he couldn't do it with a pitcher?

A. Of course it is a well-known fact that a well-known metal will burn better than a sponge.

Q. Would that be possible by putting a sponge there and keeping it wet; could he prevent that burning absolutely?

A. I should not think, if a strong current were on—in fact I know if a strong current—just as I was going

to frame that sentence I thought of some experience 1632
of my own—not with killing people. I have known moderate currents to burn, and burn very severely.

Q. Notwithstanding the interposition—

A. I always used an electrode covered with sponge or covered with absorbent cotton or felt.

Q. From that experience, is this method described by Mr. Brown—this method which he relies upon to prevent burning—reliable?

A. No, sir; I do not think so. I have known cur- 1633
rents moderate to be given for the relief of sciatica to produce a bad burn.

Q. Through intervening wet substances?

A. Through intervening sponges; and I have known not only that—I have known in one very susceptible individual a large slough to form there from a current of moderate voltage—moderate quantity.

Q. There was some testimony given here during my absence, but which I have read, of Dr. Peterson, in
which he said that he dissected animals and found the 1634
right auricle of the heart beating, but nevertheless he concluded that the animal was dead. Is that a safe medical conclusion where the heart is beating?

A. I should be very unwilling to conclude that an animal or human being was dead when the heart was beating.

Q. In any shape?

A. In any shape.

By the Referee: 1635

Q. He said that the left ventricle had ceased to beat entirely, but that the right auricle was vibrating or beating from reflex nervous actions?

A. I will tell you why I hesitated to believe it, for many reasons; but among others, in the case of the experiments of the Frenchman, D'Arsonal, who claims that he has killed dogs apparently by electric currents and then brought them to life by artificial respiration.

1636 By Mr. Poste:

Q. Where are those experiments?

A. Those I will give you, but they are contained in one of the French journals.

Q. Can you give it to us now?

A. That I cannot. It is also in a report to the Societe de Biologie. I can send it to you.

The Referee:

1637 You can mail them to us.

By Mr. Cockran:

Q. Doctor, there was a case proven here in which a dog fell upon a wire—he first stood upon it, and then jumped into the air and fell upon it, and received a severe burn right here—right where the forearm joins the shoulder, and also across the right side of the snout, and also upon the right hind leg. This animal 1638 remained, according to the testimony and to all appearance, dead for ten hours, and upon being partially buried in a soft earth at the back of a house in Eighth Avenue he showed signs of life and ultimately came to. Now, was that any such experiment as has been described by this French gentleman?

A. Yes, the same—essentially the same, I should think. With regard to this dog, I do not think anybody carefully examined him who was competent to 1639 examine him. In the case of the Frenchman, he was undoubtedly competent to examine these dogs.

Q. As a matter of fact, the information which the Frenchman had obtained was more reliable, because it was more scientific?

A. Certainly.

Q. But in this case the dog had remained absolutely motionless, and as far as the eye could discover—he was critically examined by the owner and his wife, and there were no signs of life?

A. It was the same experiment, but lacking in the precise details. 1640

Q. Is it conceivable that at least ordinary unconsciousness will continue for ten hours?

A. Oh, yes; I can readily understand that.

Q. Not from electricity, but from other causes. Would it be natural from other causes?

A. Yes, I think unconsciousness might occur in a dog from other causes, but causes of unconsciousness are very various in dogs and in human beings. 1641

Q. Now if you put a dog who was unconscious from any cause, say a cold in the head—

A. (Interrupting.) He would not be unconscious from that; he would be conscious.

Q. If you put him in the earth would not that make the cold worse?

A. It would make the cold in the head worse; yes.

Q. Now take a dog unconscious from any cause, putting him in the earth would not do him any good?

A. I don't know whether it did this dog any good. 1642

Q. But he revived under it?

A. Yes, but he might have revived anyway.

By the Referee:

Q. What do you think of the theory advanced by other witnesses that putting him in the earth drew off the electricity?

A. I guess the electricity passed off very naturally, and it would pass off anyway. 1643

Q. It would without putting him in the earth.

A. Yes, I understand that.

The Referee:

These linemen and telegraph men claim that where they are shocked they do that.

Cross-examination by Mr. Poste:

Q. Can you state from your recollection if any record was made of it, as to what degree of electrical

1644 energy was administered to these dogs of the Frenchman, D'Arsonval?

A. No, sir; that was not stated. It simply states that they were apparently dead.

Q. You have quoted from Dr. Richardson. Isn't it a fact that this Dr. Richardson that you have quoted distinctly favors execution by electricity?

A. That I do not know. I should think it very inconsistent if he did.

1645 Q. Do you know whether it is not stated as a matter of fact in Tidy, by quotations from Dr. Richardson, that he is in favor of it?

A. That I don't know. I didn't read the book for the purpose of getting Dr. Tidy's opinion, but for the purpose of getting his facts.

Q. You have not answered my question. Now, can you tell me as to what size of electrodes were used when this large resistance was indicated that you have mentioned?

1646 A. Which?

Q. Of 550,000 ohms.

A. No; I couldn't tell you the exact size.

Q. What was the name of the author?

A. Jolly. The book was printed in 1884 in German, and published in Wurtenburg.

Q. Do you remember the title of the book?

A. I can give you the translation of the title or the German.

Q. I want the translation.

1647 A. "The Resistance of the Human Body"—to that effect—I forget whether experiments are used in the title or not.

By the Referee:

Q. Electrical resistance?

A. Electrical resistance of the human body. And then there are a number of publications published in German—by a man by the name of Gaertner.

By Counsel (resuming): 1648

Q. Have you ever had any experience with dynamic electrical currents?

A. What do you mean by dynamic electrical currents?

Q. I have particularly in mind a current like an electric-light current?

A. No: I have had very little experience with them; we don't use those in the medical profession.

Q. Do you use any form produced by dynamos? 1649

A. No, sir; we do not; I do not. In some cities in the West and some cities in New England they do.

Q. I was talking about your own experience?

A. Yes, sir.

Q. The currents you use are very simple, I suppose?

A. Usually they are simple; yes. They run up—very seldom exceed in my practice 40 milli-amperes.

Q. The electrical energy of a current—electrical energy is indicated by what? 1650

A. Volts.

Q. By volts simply?

A. By the amount of work they do.

Q. What determines the amount of work?

A. In our cases we measure simply by a milliampere meter.

Q. The electrical energy?

A. We are supposed to measure quantity.

Q. What is the number of volts that you usually use? 1651

A. I don't usually determine that. I presume it rarely exceeds 100 volts in the batteries we use, but the number of volts will be determined by the amount of resistance that we meet.

Q. 'That is the style of battery that you use?

A. I have used various batteries—the chloride of silver is mainly the battery that I use—have used for the last few years.

1652 Q. It is a fact that the electrical energy is made up of two factors, the current and voltage, is it not?

A. You can put it that way, certainly. Then, it is divided by the resistance, if you please. The current is equal to the electrical-motive force divided by the resistance.

Q. But in fact the electrical energy is the produce of the electro-motive force?

A. Yes; one is the quantity and the other is the propelling force.

1653 Q. You have made observations of resistance?

A. What, sir?

Q. Observations of the resistance of the human body?

A. Not to any scientific extent, except in my own case, to determine what I had to deal with.

Q. You have an instrument that you use in your practice that determines that approximately?

A. Yes, sir.

1654 Q. What, doctor, have you observed of the effect produced upon the recorded resistance; that is, the recorded resistance of the continuance of the current?

A. A continuous current?

Q. Continuance of the current?

A. To diminish the resistance?

Q. Yes.

A. Very greatly to diminish it; very quickly, too, in some cases.

1655 Q. To what cause do you ascribe that very marked falling of the resistance?

A. That has been a Chinese puzzle to physicians. There are a great many theories advanced. It is the molecular alterations that take place in the tissues.

Q. Chemical action?

A. It is not chemical action purely; it is the alteration that takes place in the tissue. It will take a long lecture to tell you of the cause; it is a complicated matter.

Q. Isn't it your opinion, doctor, that the degree of 1656 rapidity with which the resistance drops under the application of the current is dependent upon the degree of electrical energy used?

A. Oh, yes; I think so.

Q. So, that the greater the degree of electrical energy the more rapidly the resistance falls?

A. I think that is the case.

Q. Isn't it a fact, in your experience as a physician, in the use of electrical currents for healing purposes, 1657 that that law of the dropping of the resistance is so marked that practically the resistance of the body presents a very inappreciable factor in the problem?

A. No, sir; it is not. We are talking rather wildly here, because what you might call an inappreciable factor I might not call an inappreciable factor. If you will state it more exactly I will explain it more exactly.

Q. State it in your own way?

A. I don't know what you want. I cannot put 1658 questions and answer them both.

Q. I mean, state your theory upon the general proposition?

A. Well, sir, I don't think it is an inappreciable factor. I think the resistance of the human body in most cases of electricity is a very appreciable factor.

Q. How fast will the resistance of the average human person drop, giving the figures, under this current of—how many milli-amperes? 1659

A. Anything that you want; it depends upon what you apply. I apply from half a milli-ampere up to forty; how quickly will it drop?

Q. Yes.

A. I cannot state from person to person, because I have never computed the average.

Q. Can you give me any illustrations?

A. Yes; I cannot give you an illustration with a current of 40 milli-amperes, because that is a very

1660 high current; we seldom use more than ten milli-amperes. I turn on a current of ten milli-amperes; I pass it through a long resistance of the human body; at the end of five minutes I may find that that resistance has dropped possibly one-third; in other cases I might find that it has dropped very little indeed, so that unless I carefully measure it I would not be able to appreciate it.

1661 By the Referee:

Q. You say you may find. That has been your experience?

A. I mean it varies from individual to individual.

Q. That has been your experience?

A. That has been my personal experience. So that I will illustrate it in this way: If you were to come to me and want me, for instance, to galvanize your spinal chord, I put one electrode on your neck and the other on the small of your back, and turn on, we will 1662 say, a current of ten milli-amperes. Now, I probably would not have to alter the quantity of that current in your case at all, because the resistance might diminish very little. I might give it to you, Mr. Cockran, and might have to alter the resistance one-half, because the resistance might diminish so much, and so it is in various persons.

1663 By Counsel (resuming):

Q. You have several patients coming to you and you desire to administer to them the same degree of electrical energy and their resistance varies—we will say a thousand volts—what variation do you make in your instruments in order to adjust the current to these various resistances?

A. I will make this illustration: I presume—I don't know whether you are an electrician?

Q. I am not.

A. I presume you know what a rheostat is? 1664

A. Yes.

A. And I presume you know there are different kinds of rheostats?

Q. You are talking now to the County Judge, and not to me.

A. I don't want to use technical terms that are new to you.

By the Referee: 1665

Q. Just describe it.

A. There are different kinds of rheostats. Now, as a matter of fact, most of us use a water rheostat, as it is called, on which we do not measure accurately the resistance, but we are simply able to get the resistance without knowing exactly what it is. You understand what I mean: for instance, it is two bars of carbon working up and down in the water on a graded slot; the more they are immersed in water the more electric- 1666
ity can be passed through one carbon bar to the other, and the more they are taken out of the water the less will pass. Then we have a measure—a milli-ampere metre. We measure with the milli-ampere metre the quality of electricity, and then we grade it more or less with our water rheostat without actually measuring the resistance: that is a more convenient way for us to do. I turn on a very mild current, and I gradually introduce more and more resistance until my milli-
ampere metre indicates that I have got it to a certain 1667
point that I want, and then I let it remain there. Now if the resistance diminishes there will be more electricity admitted than will be indicated by my metre.

By Mr. Poste:

Q. Do you state as your opinion that this susceptibility to electrical influences is any more than an

1668 ability or a lack of ability to endure the pain of the current?

A. I don't understand that question.

Q. Is there any difference in your definition of susceptibility, as used by you in your direct examination, from this: That it is an ability, or lack of ability, to endure the pain?

A. Yes, sir; I think it is over and above that. There is, so to speak, a difference in vitality in the
1669 human being, and that is entirely different from the ability to endure pain. A woman may be very susceptible to pain and have more vitality than a man.

Q. And a woman may endure more pain than a man?

A. Yes, although more female infants live than male infants, although they are more susceptible, as a sex, to pain.

Q. Now, doctor, have you ever made any study of electric lighting?

1670 A. No, sir; I know nothing about mechanics; I simply use medical electricity in my practice.

Q. Then your knowledge of electricity is limited to medical?

A. Almost entirely; I make no pretense of any other knowledge.

Q. Have you made any special study of static electricity except what you have read recently upon the subject?

1671 A. I have not read recently upon this subject; my knowledge of static electricity is limited, simply for the reason that we use it very little in our practice. I have a static battery, but I don't use it very much.

Q. Have you made any special study, that is, during your life as a professional man, upon the subject of lightning?

A. Upon the subject of lightning?

Q. Lightning.

A. No, I have not seen any particular use of it.

Q. I call not for an explanation of the fact, but 1672 just you answer the question whether you have or not.

A. No further than what I have stated in my testimony as to the number of cases killed and the variable effects of lightning; and then some cases that I have seen injured by lightning in former years, before I was a physician.

Q. Have you any theory of your own in regard to —that explains the fact that the resistance of the human body differs in different individuals?

1673

A. Yes, I have a theory. I suppose the resistance of the human body mainly depends upon the resistance of the skin. For instance, in this experiment of Jolly's, the resistance of the skin was found to be 96,000 Siemens' units—about 90,000 ohms, and the resistance of the tissue underneath was only 640 ohms. Now, I know that it is that horny obstruction of the skin that interposes the most resistance, and it is the apertures of the hair bulbs, sweat glands, and some of the other structures—cavernous structures in the skin 1674 that permeate—and I presume a man can largely—and I presume that the amount of moisture held by these structures, together with the varying molecular condition—the different kinds of disease—is what makes the resistance.

By the Referee:

Q. That is what makes it vary?

A. That is what makes it vary.

1675

By Mr. Poste:

Q. Can you explain how the man hanging from a wire with both feet and not touching the ground could receive any current of electricity at all?

A. Why, certainly.

Q. Tell us?

A. It goes in the sole of one foot. You ask me, I believe, as to how I could explain the current passing from a man whose two feet were fastened to a wire?

1676 Q. Not touching the ground.

A. The current went through the wire, and it went down through the sole of one foot, and if the legs were not in contact it passed up into one leg and down the other leg and out.

Q. How was he suspended to the wire by the soles of his feet?

A. By muscular contraction, probably.

Q. Was he barefooted?

1677 A. I don't know.

Q. You would state that as a fact?

A. I state that as a fact from a medical authority —*Medical Reporter.*

Q. How long did you say he hung head downward in the air?

A. He remained suspended for one hour.

Q. Did you ever know a case in your experience of a man being suspended head downward for one hour and living?

1678 A. No; I have not had much experience, but Dr. Terry, of Utica, has.

Q. Dr. Terry of Rome?

A. Dr. Terry of Utica—Dr. Terry of Utica has.

Q. I suppose that susceptibility of the human body varies in different individuals in regard to poison, does it not?

A. Undoubtedly.

Q. For instance: Do you believe that there is any human being—I will ask you another question first: 1679 State whether or not, in your opinion, the susceptibility of different persons to the effect of arsenic differs?

A. Very much.

Q. Is there any doubt in your mind that arsenic will kill every human being if properly applied?

A. I don't know. I never tried.

Q. What is your opinion?

A. I can't tell until I have tried.

Q. Then you have not any opinion upon the subject?

A. I have an opinion on the subject. 1680

Q. I ask for your opinion?

A. Well, my opinion is that it would kill some people in a certain dose and not kill others, and that some people would vomit it up immediately.

Q. Is it your opinion that there are some people to whom arsenic, if applied scientifically—

A. (Interrupting.) Would kill?

Q. Would kill?

A. I have no doubt whatsoever that some people 1681 would be killed by arsenic, for I know they have been killed by arsenic.

Q. Is it your opinion that there are some people who could not be killed by arsenic?

A. I don't know.

Q. I ask for your opinion?

A. That is a fine point. My opinion cannot be be very well formulated upon a subject about which I have no knowledge. I know that people have been killed, because they are being killed by it every day. 1682

Q. Then you have no opinion on the subject?

A. I would rather state that I have no opinion on the subject.

Q. How is it in regard to strychnine.

A. I think the same could be said of strychnine.

Q. Prussic acid?

A. Prussic acid; well, I think that is more fatal than strychnine or arsenic. It would be more so in a large number of cases. 1683

Q. Take the case of morphine?

A. I know the susceptibility of that varies enormously, because I have known of men taking thirty grains of morphine in one day and going around and practicing law.

By Mr. Cockran:

Q. That is the only profession that would stand that amount?

1684 A. That is the only profession that could stand that amount.

Mr. Poste:

Q. Perhaps you have a more definite opinion as to the question of morphine than you have with regard to arsenic?

A. No; I think that arsenic would be likely to be more fatal to a larger number of Americans than morphine would, although in the East it is eaten as a regular article of diet in stupendous quantities. 1685

Q. Then, I understand you to say it is your opinion that there are certain people who could not be killed by the use of morphine?

A. I think there are. I think there are people whom it would be impossible to kill by morphine. I think there would be very few, I would like to add.

Q. I have no objection to that, although the former statement answered my question.

1686

Mr. Cockran:

I think that is proper.

A. I wanted to qualify that, because it is irregular to say a man took such an enormous dose.

The Referee:

It is on the record.

1687 Q. You spoke of these burning effects produced in some of your operations. Were the electrodes wet in those cases?

A. In my own personal cases?

Q. Yes.

A. Oh, yes, because I never use an electrode unless it is carefully wet, and wet with warm water, too.

Q. Water, simply or a solution of some salt in it?

A. No, I don't use a solution of salt, although I know it is a somewhat better conductor, but it is apt to corrode my instrument, and for that reason I have given up 1688 using it altogether of late years. I use simply hot water. I have it brought in fresh into my office for each person, and in warm weather I use it just as hot as they can stand it, because heat has an influence in diminishing the resistance also.

Q. Will you state that it is your opinion that the heat was actually produced by the electricity or by the hot water?

A. I know it was produced by the electricity and not by the hot water. 1689

Q. Tell us how?

A. Because the hot water pains first and then grows cool, and electricity pains first and then gets hotter and hotter.

Q. What quantity of hot water do you use in such a case as that?

A. I don't measure it. I put the sponge in the water and then squeeze it off so that it won't drop all over the patient. 1690

Q. Have I asked you this question: Does the increasing of the size of the electrodes diminish or increase the resistance?

A. Increasing the size of the electrodes diminishes the resistance.

Re-direct examination by Mr. Cockran:

Q. Doctor, you have been asked if you know anything about electricity except medical electricity. Is there any difference in electricity, whether it is applied as medicine or to electric lighting or telegraph? 1691

A. It is all electricity, of course.

Q. Mr. Harold P. Brown, a gentleman whom you have seen rise up over the back of Mr. Poste's chair occasionally during the cross-examination, spoke of commercial electricity. I think he divided the electrical currents one day into commercial and static?

1692 A. There are technical terms that grow up from usage.

Q. When you mention electricity used as a medicine, you refer simply to the application of electricity; it is not any difference?

A. No, sir.

Q. You never heard of two different kinds?

A. It may vary. You get different effects on the human body by different forms.

1693 Q. Can anybody tell how death would be caused by electricity?

A. No, sir. I don't think they can.

Q. We had this same gentleman, whose authority, as far as his testimony is concerned, is immense.

Mr. Poste:

You are not conducting this before a jury.

Mr. Cockran:

1694 No, sir.

Mr. Poste:

I think your remarks are not proper.

Mr. Cockran:

By his own statement he attempted to describe its effects on the human body.

1695 Mr. Poste:

I do not think it makes any effect on the witness.

(Question withdrawn.)

Q. That tribute being paid in which I desire to concur, I suppose, doctor, you will answer the question. It has been described as a breaking down of the nervous system, a total breaking of the nerves. Does that explain anything to you?

A. No, I don't understand what is meant by the breaking down of the nervous system. 1696

Q. You are in the same condition I was when I heard it, doctor?

A. Yes, sir.

By the Referee:

Q. How long have you been in practice?

A. How long have I been in practice? Sixteen years. 1697

BERNHARD SACHS, called as a witness in behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

Q. What is your profession, doctor?

A. Physician. 1698

Q. How long have you been in practice?

A. About seven years.

Q. Are you connected with any of our institutions of learning?

A. I am professor of nervous and mental diseases at the New York Polyclinic.

Q. Have you given attention to the subject of electric influence on the human body?

A. I have, sir; for the past seven years. 1699

Q. Now, doctor, would it be possible, in your judgment, to generate, by artificial means, any current that would certainly cause death in every instance to a human being—an electrical current?

A. Oh, yes; I think it might be possible, sir, but I do not know of any current, I have not heard of any current, thus far generated, that would do it.

Q. That is to say, you think it may be generated?

A. I think such a current may be generated; yes.

1700 Q. In other words, you think that those properties are in electricity?

A. Yes.

Q. But not yet developed so as to be controlled by human means?

A. Yes; not to my knowledge.

Q. We have heard a great deal about electricity, doctor? Permit me to ask you a question or two about electricity, so as to make certain questions clear. I
1701 meant to put them to Dr. Gray, but they escaped me. We speak of electricity and currents of electricity passing into a human body. Is there any such thing as a definite knowledge of the properties of electricity as a current, so that we could speak of a current of water, something that moves?

A. I haven't any positive knowledge on that point; we simply compare it to a fluid, for reasons of convenience.

Q. Exactly—for purposes of convenience?

1702 A. Yes.

Q. Now, when you do that—test a person—and put him in this chair that has been designed for Kemmler, and the current is introduced, turned on—is there any certainty that that produces any serious effect on the human body?

A. We have no positive knowledge whether there is anything introduced, or whether it is simply an effect.

1703 Q. It shows nothing on the human body—no change in the human body except in a certain way?

A. It brings about a change in the body.

Q. It does.

A. Yes.

Q. Now, doctor, you take a current such as has been described here of 1,500 to 2,000 volts, which is passed through a human body in a chair of this kind, and by electrodes such as have been described—you have heard the explanation of it—what I want to know now is whether that would, necessarily, cause 1704 death?

A. I think it would not necessarily cause death.

Q. Would it cause unconsciousness necessarily?

A. It might cause unconsciousness, but that is not positively proved.

Q. If it didn't cause unconsciousness, what would be its effect on the system?

A. The person would receive a very severe shock, without having unconsciousness; his spinal cord 1705 might be badly influenced—paralysis might result from it, and his peripheral nerves might be so far influenced as to form the various degrees of paralysis.

Q. What effect will it have—his sensation—would it give him great pain?

A. Anyone who has used electricity frequently, and has got themselves into the current inadvertently, will testify to the fact that it is exceedingly unpleasant to receive a severe shock.

Q. Would it be safe to describe the torturing sensa- 1706 tions—the pain that would be caused by a current of this kind being passed through him—as exceedingly painful?

A. I am willing to call it that; yes, sir.

Q. Have you paid any attention to the effects of lightning, doctor, upon the human body?

A. Only in this respect, that I have seen several patients who have suffered strokes of lightning, and I have naturally paid attention, also, to the cases that 1707 have been reported in literature—among those the ones which were reported by Dr. Gray.

Q. Now, doctor, have you heard of cases, or met with cases in your profession, where people have received this same shock, which is held to be deadly in some instances—for instance a shock from a Brush electric-light wire, and have recovered from it?

A. I can instance the case at the charitable institution of which I am attending physician, of a waiter

1708 who was serving a restaurant, in which they were using the light—which system I do not know. I know no further particulars, except I have the authoritative statement of the patient, and of a physician who took the history long ago, without a special object in view—

Mr. Poste:

That is all heresay.

1709 The Witness:

But that is the kind of hearsay that we have got to depend upon in 90 cases out of 100; in medical cases. This man would have no other object than that of truth in saying that; he was unconscious for fully four hours after receiving this shock. He recovered from this and for the past two years has been suffering from paralysis of the legs, from which he is gradually recovering.

1710 Q. That case came under your own notice?

A. Yes, that case came under my own notice. I will say that this man, the way he got into the circuit was he got on a chair and tried to right the wires, and took hold of the wires and fell down from the chair unconscious, and remained in that condition four hours.

Q. Now, doctor, we have had some proof here, in the shape of a dog, of the effect of the wires to burn. Now, would that be the case in event of these experiments being tried on Kemmler? Would his body be burned by contact with the wire? 1711

A. That would depend upon a great many different conditions. That would depend chiefly upon the condition his skin was in, and upon the condition of the electrodes—upon a number of different conditions.

Q. You have heard Dr. Gray's testimony upon that?

A. Yes, sir.

Q. Do you agree with him that it is absolutely impossible to prevent the burning? 1712

A. With using very strong currents, my experience would lead me to think that under the negative pole, at least, there would be an extremely severe burn or cauterization would be effected. We know that in using these ordinary currents—these stronger currents—unless we are very careful, and if we keep the sponges on the body so that a current of 20 to 25 milli-amperes—if we keep those sponges on the body 1713 for 10 or 12 minutes, as we have occasion sometimes to do, the skin would be very apt to be cauterized and a sore would be apt to be formed in that way, so that in a number of cases a severe burning goes on.

Q. Suppose the person did not die from the contact immediately—that burning would continue, wouldn't it, right along, as long as the current was kept up?

A. As long as the current was kept up, certainly.

Q. If, in the language of the law, the current was kept up until he was dead? 1714

A. That is as long as it was passing through him.

Q. I mean if the current was kept going through him, that burning would continue?

A. Yes, sir.

Q. It would grow deeper and larger?

A. I have no positive knowledge as to whether it would cauterize a large part of the skin—how it would affect the tissues below; I have no positive knowledge, because our burning, as far as we are responsible for 1715 it, is confined—is restricted to the upper layers of the skin. His head would burn, or whatever it was applied to—it would cauterize the skin.

Q. Now, we have had some evidence here about the variations in resistance?

A. Yes, sir.

Q. As I understand it, doctor, we have—I think I may state it here as the unanimous testimony all around of those who knew about it and those who didn't, 1716 that the human frame will vary, even of the same person—his resistance will vary?

A. Dr. Gray has testified to that.

Q. Does your observation concur in that?

A. Decidedly, exactly the same.

Q. Now, we have also had testimony that when the current is applied in some instances the resistance drops?

A. Yes.

1717 Q. And Dr. Gray has testified that in other instances it does not—that is, does not appreciably drop?

A. Yes, sir.

Q. Now, have you got any idea that there is a limit below which the resistance will not drop?

A. Yes, sir. With the current we use there is a maximum resistance and a minimum resistance. Now, how much current you may use, you will never get beyond that minimum resistance. The body under favorable conditions is a very poor conductor, and 1718 under favorable conditions is only a fair conductor. There is a proposition of Dr. Eulenberg to show that there is a minimum resistance which has to enter into all calculations.

Cross-examination by Mr. Poste:

Q. Have you any figures on this minimum resistance that you can give us now—that you can cite 1719 now?

A. The minimum resistance has been found, in cases, to vary between 1,200 and 1,400 ohms.

Q. You mean from 400 to 1,200 ohms?

A. 1,200 to 400 ohms. It is rated that way. We begin with the larger number.

Q. The result of how many experiments does that average?

A. That was determined by a number of patients; I don't know how many. The matter was determined

in order to show that in various diseases the resistance 1720
varied very much.

Q. How soon, under the application of the current you usually use, is the minimum resistance reached?

A. That I can only answer in this way, if I am to judge: As Dr. Gray has said, very correctly, at the present time we have no need of determining the resistance in every practical application that we make, simply because we have absolute galvanometers which give us the actual resistance, and we do not very much care 1721
what the resistance is in an individual case, but using the same electro-motive force we find after 10 or 15 minutes of application that the resistance does not appear to be diminished. After that it does not appear to diminish any further, and we infer that from the fact that the deflection of the needle does not increase after that time.

Q. Increasing the power with the rapidity of the fall of the resistance would naturally diminish the resistance? 1722

A. Increasing the voltage would naturally diminish the resistance; yes, sir.

Q. In a direct proportion, do you think?

A. It is always a question between the electro-motive force and the resistance at all points, no matter what the strength of the current. I think we all have to keep that law in mind.

Q. Is this burning which you describe an actual burning from the heat of the electrodes, or is it—I will 1723
change the question.

(Question withdrawn.)

Q. Have you any explanation that accounts for the theory of the fall of the resistance?

A. Yes, sir; the changes in the skin are entirely responsible for the change in resistance, and the changes of the skin, as far as they have been observed, are these: Under the influence of the current there is

1724 what we call an extravasation of the skin—that is, a greater blood supply in the skin, or a determination of the blood to the skin. In connection with this greater determination of blood to the skin there is probably a greater supply of all the fluids in the body through the skin, and this greater moistness of the skin is in all probability the cause of that diminished resistance. Now, there is no better way of bringing about a diminishing resistance than by allowing the current itself to flow through the skin. 1725

By Mr. Poste.

Q. Is the burning which you describe—might not the burning which you have described be referred to the changes which take place in the skin under the effect of the current, without reference at all to the contact of the electrodes or the heat in the electrodes?

A. I do not think it is a matter of heat in the electrodes. 1726 It might possibly be to a certain extent. The chief action is, I believe, that we know, under the influence of the negative pole particularly, alkalies are formed, and that these alkalies produce a chemical—caustic action.

Q. Then you don't refer the burning to the heat produced by the electrodes?

A. I don't think it is; I think it is chemical action.

By Mr. Cockran

1727

Q. Like vitriol: it is not a burn like a hot substance touching it?

A. It is not a burn like touching anything hot—like a platinum wire.

Q. It acts as vitriol, does it—burns from chemical properties?

A. I am not willing to say positively that it acts like vitriol, but I will say that it has chemical effect—the action of it.

Q. Doctor, what is the largest dynamo that you know of in operation in this country—have you any information on that subject? 1728

A. I have no further information, except that I have heard that a dynamo of 10,000 volts was possible, or could be manufactured or made. I believe that the ordinary dynamos, if I am not mistaken, are between 1,000 and 2,000 volts, and that current is insufficient, in view of the enormous resistance of the human body.

Q. That is hardly germain to my question? 1729

A. That is thrown in.

Mr. Poste:

I don't specially care.

Mr. Cockran:

What is the use? What difference does it make? I will ask him it.

Mr. Poste: 1730

I don't care to have that down in answer to my question.

Re-direct by Mr. Cockran:

Q. Doctor, that suggestion of yours about the burning being the result of alkalies formed by the electrical current opens up a new field of possibilities which I will have to ask you about. Has there been 1731 anything ever seen, or has anything come under the notice of medical men, that has given you the impression that it is the result of alkalies, and not of the heat of the electricity itself?

A. We simply know this: That the two poles set differently upon substances that can be chemically divided.

Q. Now, in that case that Dr. Gray has told us about, where both his feet were cauterized, the one that he was held by or the other was cauterized.

1732 A. I don't know whether that was the case or not.

Dr. Gray:

That was the case. The current went through him and the soles of his feet were charred for two inches, although the wire was not in contact with them at all.

The Witness:

That would be in favor of the action around the region of the poles. 1733

Q. Would that be the result of alkali?

A. I think that would be the result of chemical action in that case.

Q. That is what you refer to?

A. Yes.

Q. So that when this burning is spoken of it don't mean the burning from the heat of the electricity, but it would be a burning from the effect of the current in creating alkalies?

1734 A. I don't wish to state that here, but I know that from our instruments of electricity we get chemical effects rather than burning effects.

Q. The chemical effect is where you put substances together that result in giving a burning sensation, as vitriol does, for instance?

A. Will you repeat that question?

Q. I mean when you speak of chemical action like that, the burning by chemical action, you refer to a 1735 burning which is not produced by a hot substance like a hot iron, or match, or coal, or a flame of gas, but rather to the burning or consumption that accrues from the contact with the skin of certain chemical properties, like vitriol?

A. Yes, sir.

Q. For instance, you throw vitriol over a man's hand, that burns it away, doesn't it?

A. Yes, sir.

Q. It doesn't come from any application of heat?

A. That is a chemical action. 1736

Q. And it is that kind of burning that is likely to come from this current?

A. Yes, sir; I think it is from that.

Recess until 2 o'clock.

NEW YORK, July 17, 1889.

After recess. 1737

DR. GRAY, recalled.

By Mr. Cockran:

Q. I have had to call you back on the stand because I omitted to ask you a question or two. Have you examined that publication of Dr. Harold P. Brown in which he describes certain experiments which he performed? 1738

A. Yes, sir.

Q. From your knowledge of the effect of electrical influences upon living organisms can you state whether those would be of any value in determining the current which would be certain to kill a human being?

A. They might be of some value, but they would not, by any means, in my opinion, be conclusive.

Q. Of what value would they be? 1739

A. They would be of some value as showing the effect of certain currents upon dogs.

Q. Would they show the fact that any certain current would kill a human being?

A. No, sir.

Q. Why; explain why?

A. Because of such facts as these: Here is one dog that weighed 20 pounds and he had 8,500 ohms resistance, and he was killed by 800 volts. Now, another

1740 dog who weighed 56 pounds, and therefore weighed 36 pounds more, and had 27,500 ohms, pretty nearly 19,000 ohms more resistance, was killed by 160 volts; that is to say 640 volts less. Then again, in the case of a dog—

Mr. Poste:

Just one moment. What are you reading from?

1741 The Witness:

This book of Mr. Brown's.

Mr. Poste:

Yes, I know, but what page?

The Witness:

Page 19. Then there is another dog who—

1742 By Mr. Cockran:

There was; all these dogs were killed or alleged to have been killed.

The Witness:

There was, yes, sir; if all dogs' souls are immortal, he is still. There was another dog who weighed 53 pounds and he had 30,000 ohms resistance.

1743 The Referee:

Give me the numbers of those tests.

The Witness:

That is on page 19, dog No. 13. He weighed 53 pounds and he had 30,000 ohms resistance, and yet it took 220 volts and 30 seconds to kill him. Now again, in the case of a horse that weighed 1,230 pounds, with 11,000 ohms resistance, it took 700 volts only to kill that horse, although the 10-pound dog had been killed with 800 volts, with only 2,500 ohms less resistance in the 10-pound dog. 1744

Q. Would not that table of these experiments tend to show that there is no way in which you can estimate the proper current it would take to kill, either from the resistance or from the size of the wire?

A. I wouldn't like to say that.

Q. I mean so far as those experiments are concerned.

A. So far as those experiments go they are not conclusive. 1745

Q. Don't they tend to show that the resistance is not the only factor?

A. Yes, sir.

Q. That the resistance is not the only factor?

A. That is what I have said.

Q. And that the weight is not conclusive?

A. No, sir; I don't think the weight or the resistance either one constitutes the only factor.

1746

By the Referee.

Q. Does that table show the amperes?

A. It shows only the voltage.

Q. I have a computation of the amperes which Mr. Jones put in evidence which he has calculated?

A. That I have not done. I had calculated them for myself, but not this way. (Referring to table.) This table shows that thing still more clearly.

Q. After being shown that table made by Mr. Jones and assuming that is correct, does that shed any additional light on your testimony? 1747

A. I would like to look the table over.

Q. Assuming it is correct—that its correctness has not been challenged?

A. I would like to look this table over (examining table). Well, no, it doesn't make any difference, because here is what Mr. Jones has marked No. 3; he has calculated the number of milli-amperes, ninety-four

1748 milli-amperes, and the dog died in fifteen seconds; yet down on No. 19, with an alternating current also, 140 milli-amperes failed to kill the dog.

By Mr. Cockran:

Q. That carries out your theory?

A. That carries out my theory; that is what I say.

Q. That is another way of stating your conclusion?

A. Certainly; if you will let me state, down be-
1749 low, No. 21, seventeen milli-amperes killed the dog almost instantly, and then below is the almost incredible statement that five milli-amperes, if I read that right, killed a dog almost instantly.

Mr. Poste:

You are reading Mr. Jones's statement?

The Witness:

1750 I am reading Mr. Jones's statement; if that is correct five milli-amperes killed the dog almost instantly and yet 140 failed to kill him.

Q. You think a great deal depended upon the dog?

A. Very evidently; then down below, No. 27—that was the calf, I suppose—forty-three milli-amperes killed the calf almost without a struggle.

Q. The calf was dissected immediately afterward, I am informed.

A. Oh, he might have died from that.

1751

No *cross-examination.*

Michael Kerwin called as a witness on behalf of the Relator, duly sworn by the Referee, testified as follows:

Direct-examination by Mr. Cockran:

Q. Colonel, you are now the editor of the *New York Tablet*, are you not?

A. Yes, sir. 1752

Q. And during the late unpleasantness you held a command in the United States Army, didn't you?

A. Yes, sir.

Q. Held a command as an officer?

A. Yes, sir.

Q. What regiment were you connected with?

A. The 13th Pennsylvania Cavalry.

Q. You were Colonel of it?

A. Yes sir.

Q. During your service in the war did you ever 1753
have any experience with lightning?

A. Yes sir, a very disagreeable experience.

Q. Will you describe it to the Referee?

A. Yes sir. On the 24th of June, 1864, while seated in my tent under a large oak tree — it was a beautiful day in June, clear as to-day—I heard a shot which I imagined to be a discharge of artillery.

Q. Where was this?

A. This was in Virginia, near the James River. 1754
My first impression was that we had been attacked by
the enemy, and my inclinations were, of course, to get
out and get things in order—and the impression that
has been made on my mind, while it is remarkable—
in estimating the difference between sound and sight.
I heard the shot and saw my three horses on
their backs working their feet, and the next thing I
didn't know anything. I lay for some time, I can't
say for how long, before I was discovered, but I pre- 1755
sume it could not have been very long. My friends
were all surgeons—several of them doctors, and they
came to my tent and picked me up; several of the
surgeons came to my tent and I presume used all the
restoratives and all the arts known to the science to
restore me to consciousness. My first recollection was
suffering the most intense agony—pain; and I
recollect making the remark, or some of my friends, I
don't recollect, it was them or I made the remark;

1756 they say I made the remark—that they were unkind in bringing me back to consciousness, because I was suffering; I would prefer to remain as I was. I have a very distinct recollection of feeling as if a body was being forced through my veins, through my system, which was entirely too large for the space that it was endeavoring to get through, and that continued for some time, until finally I became entirely conscious, and, of course, knew what had happened, or, as the saying is, what had struck me. And in the meantime
1757 —that must have taken considerable time—the first thing I observed was a team of mules hitched to my favorite horse dragging him away by the heels.

Q. He was dead, was he?

A. Oh, yes; he was dead. And I, of course, concluded that it must have taken some time, in the first place, to bring the team of mules and get them hitched up and prepared to drag away the horse. I had three horses killed under the tree.

1758 Q. The same tree you were sitting under?

A. The same tree that I had my tent under. It was a favorite resort for me. I always selected a shady place and a large tree that furnished ample shade—I was in the habit of selecting that for pitching my tent.

Q. How far were you from the horses?

A. The horses?

Q. Yes.

A. I do not think I could have been further away than the distance of this room—the length of this
1759 room.

The Referee:

Q. Twenty feet?

The Witness:

A. Yes, it was over 20 feet; probably 20 feet. It was an immense oak. The horses were picketed to the butt of the tree.

Q. Was there much space between the horses? 1760

A. No, sir; I presume the horses were close together. They were tied to the same tree, you understand.

Q. The same tree that you were sitting under?

A. Yes. There was a rope around the tree and the horses were picketed to the rope.

Q. About what space would there be between each horse?

A. Oh, well, there might be three or four feet; I could not say exactly. They may have stood around 1761
the tree, you know, some distance from each other, but the heads could not possibly have been more than two feet from each other.

Q. How long were you suffering from that before you recovered, Colonel?

A. That I couldn't say.

Q. I do not mean before you recovered consciousness, but before you recovered from the effects of it altogether?

A. I might say from the effects of it I suffered some 1762
three weeks. I was laid up in the hospital for three weeks. My side was entirely paralyzed, the right leg, and right arm, the hearing in my left ear was almost entirely gone, and in the right it has entirely. Since that time it has got worse. It gets worse every year.

Q. You have suffered from it ever since?

A. Oh, yes.

Q. You have never completely recovered from the effects of that stroke? 1763

A. Oh, no; I am unable to raise this arm higher than the elbow. I cannot raise it higher than this (illustrating with right arm).

The Referee:

Q. You mean higher than the shoulder?

The Witness:

A. Higher than the shoulder; put it that way.

Q. Were there any marks on your body?

1764 A. There was a mark in the center of my hand, the palm of my hand, and there was another just below the right nipple, about the size of a dollar—the discoloration.

Q. The right nipple?

A. Yes.

Q. That is the same one that you are paralyzed in?

A. Yes, sir; and in the hollow of the right hand; that I attributed at the time to the fact that I had a 1765 tin cup in my hand; in fact I had two tin cups, had a large cup of coffee, and I was engaged in the pleasant task of cooling it before drinking it; and after I recovered consciousness there were no cups and no coffee around at all. I attributed that to the lightning, that it had struck the cup and left the discoloration on the hand. That was my impression; I may not be right.

Cross-examination by Mr. Poste:

1766 Q. Was there any flash that you saw?

A. I saw none; no, sir; because my impression was that it was an attack of the enemy—that it was a discharge of artillery—I saw no flash.

Q. Did I understand you to say that you were about 20 feet from the horses, or 20 feet from the tree?

A. In the neighborhood of that. It was a large tree, and my tent was on the outer edge of the tree; that is, the tree protected me from the sun. I was on 1767 one side of the tree—it was a very large tree, probably covered—large oaks cover a great extent of ground—and the horses were picketed to the butt of the tree.

Q. Were they on the same side of the tree as you were or on the other side?

A. They were on the other side.

Q. You say you were about three weeks in getting around?

A. I was three weeks laid up.

Q. You do not know as a matter of fact whether

there were indications of a stroke of lightning about 1768
the tree?

A. No, I cannot say there was, except the fact that the horses were killed. That was a strong indication that something was around there.

Q. I do not doubt that there was a flash of lightning—a stroke of lightning, but what I want to know is whether there were any indications left of it?

A. I don't know that there was. I didn't make any particular inquiry about that or any investigation. 1769

Q. Do you know as a matter of fact what physical effect was produced on the horses in the way of marks?

A. Of the horses that were killed?

Q. Yes, whether there were any marks or burns on the horses?

A. No, I cannot say that; only the fact that they were taken away killed.

Q. Did I understand you to say it was a pleasant day?

A. Yes, it was a beautiful day, a day like the pres- 1770
ent day. It was so much so that it excited remark.

Q. It was a flash of lightning out of a clear sky, as the saying is?

A. Yes, it was lightning from a clear sky. We have those days where it is remarkable, particularly in the Southern climate. A cloud gathers very suddenly. It was not an infrequent thing at all in the South, particularly during the war, and especially after a long siege of artillery. We frequently had for 1771
several hours a large artillery battle, and frequently on a beautiful day, almost instantly, there would spring up a thunder cloud and we would have a very severe rain. That is one of the results, I presume, of artillery.

By Mr. Cockran:

Q. Colonel, you are drawing a pension for that same injury now?

A. Yes, sir; I am on the pension roll.

1772 **Henry M. Stevens**, called as a witness, being duly sworn, testifies as follows:

By Mr. Cockran:

Q. Mr. Stevens, where do you reside?

A. In Boston.

Q. What is your occupation?

A. Assistant Superintendent of the Boston Electric Light Company. 1773

Q. Where were you before that?

A. At Lowell? I was then working for the American Company, putting in electric-light plants and also had charge of a company at Boston; that is, before they consolidated with the Brush Electric Light and the New England, Western, the United States and the American—the Merchants—and I was ordered to Lowell to put in the plant.

Q. Did you, while you were working there, have any experience of personal contact with a live wire? 1774

A. Yes, sir, a good many of them. One day, about half-past three I think it was—I had my wife and family living out of town about six miles, and they wanted me to get off early that afternoon and come home, and so I had an early start-off—that is what they call starting up the machines. I told Mr. Hart, the man who started up the dynamos, to start up early, and I would go around and inspect the machines and see if they were all right. 1775 At that time we knew very little about dynamos—whether it was perfect—seeing that the machine carried a long spark; that had to be regulated. I walked over to this dynamo. The capacity of one machine was 25 lights—one machine of 25 lights—and the capacity of the ten light-machine—it was capable of carrying 14 lights. Of course, there are lots of machines that are capable of carrying 25 lights; a 25-light machine will run 26.

Q. Were they both united?

A. Yes, sir, they were both coupled. Well, the 1776
floor on the station on Middlesex street—the station
was in Davis & Sargent's saw-mill. We had the base-
ment of the saw-mill. The saw-mill was run by steam,
not by water. In our station we were in the cellar.
The floor was laid up from three to four inches of
spruce boards. Of course, I couldn't say exactly
whether those boards were perfectly dry or not when
they were laid there; I couldn't tell; but I knew it was
very seldom dry during a freshet. We would have to 1777
put a piece of board under our feet, or it would give us
a very severe shock. That night after we started up,
I just went down stairs and walked over to this 25-
light machine with my hand like this (indicating); I
wanted to see if that brush was carrying the right
spark. At the same moment I took hold of that brush
I received a shock from the ground, the floor being
wet. We had a piece about half as wide as this where
we had to walk on wet earth, and that had an effect
upon our shoes; when I received the shock I jumped 1778
on the brush that way (indicating), I took the opposite
brush into that hand, and there I remained. Of
course, I could tell what I went through; I went over—
I came up with my head laying over on the field of
the machine, and I lay there until I knew nothing
more, until my weight threw me over, and I laid on
the floor.

Q. Did you shut off the circuit of the machine?

A. God, I short circuited the machine, and broke 1779
the circuit. There are the two marks on my fingers
where I was burned with the brushes (indicating). I
knew nothing from that time until I was recovering
from the fall.

Q. Can you tell what voltage you received?

A. We figure 25 lamps a volt and 32 lamps on a machine, that would bring it to 1,450 volts, nine and three-tenths, or ten-ampere current. We were running those machines up very strong, very high, because we were trying to drown out the New England Western.

1780 Q. What was your condition; can you tell anything about your first shutting down?

A. All I can tell after I received that shock, all that I could tell, was that I received it. I knew nothing until the time that I was recovering from the shock. It was about two hours that I was recovering from the shock. I knew nothing. All I can tell you is what I suffered, and I can tell you what the press and people said that I went through.

1781 Q. What did you suffer that you were conscious of?

A. I suffered that filling up of the inside. I knew that I had to go.

Q. What do you mean, got to go?

A. I knew that I was condemned to be killed, and I was trying to get away from the machine. I done my best.

Q. How condemned?

A. Condemned to be killed.

Q. You thought you had got to die?

1782 A. I knew something was coming. I had this filling up and shortening of breath; I couldn't breathe. I commenced to fill across here (indicating across chest). Then when that sudden stoppage came, I knew nothing more until I recovered.

Q. What was your condition when you recovered?

A. The first that recovered was the mind. I had no body. There seemed to be a small round object of some kind. I couldn't see, or I couldn't hear anything, but it was a thought. I knew I was there, but 1783 I couldn't hear anything; it was a thought. That thought commenced to go as though I was hitched on a string and swung in a perfect circle right straight around; and then at the same time it commenced to grow larger, and that thought came where shall I drop. Then, of course, that thought kept gradually growing more and more. I thought it was the power of the machine, and the saw-mill, that I was run over, and the cars were coming; and then the feeling came that I was drowning in the canal.

Q. You felt all these things? 1784

A. I felt all these things, I had these thoughts, but was completely helpless in my limbs. After I had got so that I could speak, of course, I was totally blind for nearly four hours, my eyes were perfectly red except clear back. I had no feeling in my limbs. I remained in that state, did not know where my body was, and I could not move my limbs, had no control of my limbs whatever. I asked Mr. Ross, who was general manager of the company; he came to me and 1785 he says, "Steve, how do you feel?" and, of course, talking like that, I had no particular control of my mouth at all: and I asked him how my legs and how my arms were, and he said, "Your legs and your arms are all right;" and I said, "No, they are not, George, my legs are not right, my arms are not right, they are cut off." He said, "No," and he raised that leg up (indicating). It shot way out for 250 feet, like the letter "A."

Q. That was your impression? 1786

A. Yes, sir. When that leg commenced to come to itself, God only knows what I suffered.

The Referee:

Q. Something like when your feet are asleep?

The Witness:

A. God, a great deal worse. When that leg commenced to come to its shape, I was suffering through 1787 that time. I think there were six or seven of them holding me I wanted them to let me alone. I was gasping for breath. Of course, during that time the doctor of Lowell examined me, and, of course, I did not see him do that. That is what they told me. He examined me, and my heart had stopped beating. I had no pulse at all, and he pronounced me dead.

Q. What was the doctor's name?

A. Dr. Barrett, I think, of Lowell.

1788 It is understood that the witness may state what the doctor told him; and if the doctor be not produced or satisfactory evidence given it shall be stricken out afterward.

Q. Go on, now, Mr. Stevens; what did the doctor say?

A. The doctor told me I had no pulse, that my heart had stopped beating, and he had pronounced me dead.

1789 Q. The doctor pronounced you dead?

A. The doctor pronounced me dead, and it went to the press—it was published in the Boston papers and also published in the Lowell papers that I was dead.

Q. That you were dead?

A. That I was dead, and the news was carried to my parents?

Q. Did you read these reports?

A. Yes, sir: I read them Sunday morning.

1790 Q. While you were alive you read you were dead?

A. A great many I see sitting here don't believe in laying on the ground. During that struggle, of course, I urinated, and everything that was in me passed through me, even the blood, and where I came in contact with my bottom—backside—laying on the earth, when my drawers were taken off they were completely scorched—the skin was all off: I was completely raw. I can prove that by my wife.

Q. You mean that your skin peeled right off?

1791 A. Yes, sir: I was completely raw, and for two or three days—I was boarding then at the St. Charles Hotel—I couldn't eat anything particular, and the most I cared for was iced milk, and you couldn't grind up enough ice and cool it too much for me. Every time it went down it would revive me better than anything.

Q. Was your sensation as if you were burning?

A. Fire—just as if you had been drinking Jamaica ginger.

Q. How long did that last?

A. I think it was four or five days before I could sit down and eat a good meal. 1792

Q. This sensation of burning, how long did that last?

A. Four or five days, and the throat, every time—

Mr. Poste:

I don't think that is competent.

The Witness:

1793

Every time I would try to eat or swallow there would be an irritation—an irritation of the throat.

Q. How long was it before you got entirely clear of those effects?

A. I don't know as I could exactly say that. It was a number of weeks before I commenced to feel that I was myself again.

Q. Now, you have told us the sensation when your leg was first moved?

A. When it first moved it lifted up like that—shot out—but the going was no pain. 1794

Q. What was the pain?

A. It was the coming back to its natural shape again.

Q. This was only an impression that you got?

A. Oh, God, I don't know whether it was an impression or not. I don't want to go through it again.

Q. It seemed as if your leg shot out, and the pain was the coming back?

1795

A. Yes.

Q. And what other sensation did you have except this peeling of the skin and this burning sensation?

A. That was caused by my throat, and then another night I was going out, about six o'clock—

Q. Before you go to that, state any other sensation you had just about this time when they were reviving you besides that sensation of the legs shooting out.

A. The sensation I received—the worst feeling I had was gasping for breath.

1796 Q. What kind of feeling did that give you?

A. If you ever had anybody come up and strike you in the stomach and knock the wind out of you when you were a boy, you would know what it was.

Q. Do you mean it was a deathly sickness?

A. It was a gasping feeling, drawing this way (illustrating).

Q. What effect did it have on you? Was it a painful feeling?

1797 A. Pain? I don't know what you would call it when a man is gasping for his breath.

Q. I will tell you, Mr. Stevens. I do not think you make yourself exactly plain. A person may gasp for breath without being absolutely unconscious or being in pain—like running, for instance.

A. It is a great deal worse than running, or losing your breath.

Q. Of course it is a great deal worse?

A. It was a gasping, or a recovering my breath.

1798 Q. Did it give you a sensation of pain in your back and in your joints?

A. No; I don't think it was so much pain. After that gasping commenced all through here (indicating stomach)—even to the buttons on my pants would hurt me; the pain came after this gasping.

Q. Tell us what pain commenced after the gasping?

A. I don't know; it is a—

Q. Describe it as well as you can?

1799 A. It was kind of a cramp—more or less like a cramp in different parts of the body.

Q. Was it like the feeling of acute cramps?

A. Yes, sir.

Q. That was the impression?

A. Yes.

Q. How long did that continue?

A. It lasted for a few days; I don't know exactly how many days it was.

Q. It lasted for several days?

A. Yes, sir. 1800

Q. How long was it before you were free from pain?

A. In about six or seven hours; the seventh hour I could walk—stand up and walk. When I came down stairs that night, when they told me they had sent for my wife to come in, I was so anxious to come down stairs that I rolled over to get out of bed; I got up and fell right down. I had no control of my limbs at all—couldn't stand. I got on the floor and sat on my backside, and a man named DeBeck helped to 1801 dress me, and I said "I am going to get down stairs before the folks come;" and I went out and slid down two flights of stairs. Mr. Maybrey and Mr. Ross took me and sat me down in a chair before the hack drove up.

Q. How many days was it before you were free from pain?

A. I can't exactly tell now; it is quite a while ago.

Q. Your hands were burned?

A. My hands were burned through here (indicating). 1802 If, instead of breaking the connection with my hands—when I pulled that from the machine—I broke the circuit with a copper brush on the binding post of the machine. If it had not drawn the arc, I would have no fingers there to-day.

Cross-examination by Mr. Poste:

Q. What kind of a dynamo did you say this was? 1803

A. Twenty-five-light Thomson-Houston.

Q. Whose dynamo?

A. Thomson-Houston.

Q. A 25-light dynamo?

A. Yes, sir.

Q. What is the average capacity in volts of such a dynamo?

A. Of course, you cannot examine me as an electrician, because I am not an electrician.

1804 Q. I am not an electrician myself?

A. What I have had has been by experience from outside. What they call that machine would be a 45-volt machine, a ten or nine and three-tenths ampere current; and when the machine is generating, the current is adding to the work the machine is doing.

Q. What time of day was this?

A. That was about half past three or quarter to four.

1805 Q. In the afternoon?

A. Yes; half past three or quarter to four.

Q. How long had this dynamo been running?

A. How long had that dynamo been running?

Q. That day; all day?

A. Oh, no, we just started it up; we had no day circuit.

Q. Did you start it up yourself?

A. No, the man I had there, Mr. Hart.

Q. How did he start it, by attaching a bait to it?

1806 A. Oh, no; shoved a plug in. We didn't do then as we do now; we pulled out the wire out of the binding post of the machine and put that wire in. We use a plug now.

Q. Did you do that yourself?

A. No, sir; Mr. Hart did it.

Q. What were you doing about the machine?

A. I went over to see that the brushes were set all right, so that I could go away and leave the machine.

1807 Q. Had you charge of it?

A. I put the plant in for the American Company.

Q. You went to see if the brushes were all right?

A. Yes, sir; no, they were not. There was one that was sparking and my intention was to draw it.

Q. What does that indicate when it is sparking?

A. Drawing a long spark.

Q. What does that show?

A. It would burn the brush off.

Q. Does that fact—the fact of sparking—indicate that the brush needs to be pressed down?

A. Yes, sir. 1808

A. Is this a machine commutator?

A. Yes, sir; the more the spark is drawing, you have got to draw your sparks back until you get it right.

Q. Now tell me what you went to do?

A. I was to go there before I went out of town—to Willowdale—to see that everything was all right before I went out of town, and I went over to draw the brushes to see that the machine was all right. 1809

Q. What do you mean by drawing the brush?

A. Drawing it back—drawing the spark shorter.

Q. You took hold of it between your fingers?

A. Yes, sir; took hold of it this way:

(Witness indicates between the fore and second finger and the thumb.)

The Witness:

(Continuing.) And the moment I touched the brush, I was grounded on the floor, and that gave me a jump, and when I jumped, I shoved this hand up (indicating) and tried to save myself. 1810

By Mr. Cockran:

Q. When did this occur?

A. This occurred six years ago in August; about the middle of August.

Q. 1883? 1811

A. Yes, sir; I can give the dates if you want them.

By Mr. Poste:

Q. You say that you were fully conscious as you stood there as to what was going on?

A. After a few seconds; I couldn't tell exactly the number of seconds.

Q. You don't know then how long you stood there conscious of what was taking place?

1812 A. No, sir.

Q. Could you see anything?

A. Well, when I was receiving that—when the machine was generating into me, I commenced to go blind.

Q. How soon did you commence to go blind?

A. Just the moment I had hold of the machine—the brushes. The sensation was trying to get away. I found I could not get away and then I commenced 1813 to go—and then I commenced to fill up more like the illustration of blowing up a bladder. When I commenced to go over I went on to the machine. That was the last I knew.

Q. So that you became so blind you couldn't see the machine?

A. Couldn't see anything—couldn't see the machine.

Q. Was there anybody else in the room at the time?

1814 A. There were at the head of the stairs Mr. Hart and Mr. Debeck, the two men that worked for me.

Q. Did they come back down stairs?

A. They heard me holler—I hollered.

Q. Then you hollered?

A. One yell—"Oh."

Q. They came back and stopped the machine?

A. They came back and found me on the floor.

Q. You were on the floor?

1815 A. Yes, with the lamps out.

Q. You are stating what they said in relation to the lamps being out; you don't know that yourself?

A. I don't know that myself; no, sir.

Q. Then, do you know positively how many lamps there were that were run with that machine?

A. As near as I can gather—I could honestly take my oath there was about 31 or 32 lamps. I can count them up.

Q. What kind of lamps were these?

A. Thomson-Houston single lamps, 2,000 candle-power. 1816

Q. Arc?

A. Arc.

Q. Over what territory were they scattered?

A. It would run—what wire was out would make about four miles—that is down and back—positive and negative wire—returning.

Q. Was there a volt metre connected with that dynamo? 1817

A. No.

Q. I do not suppose you know—or rather, at that time no lamps were probably burning?

A. Well, yes, I know there were some lamps burning because I know the regulator was down.

Q. You remember positively looking at the regulator?

A. Yes, sir; that is the first thing that is looked at—the regulator of the machine.

Q. What time of the year was this? 1818

A. In August; about the middle of August.

Q. Now, did I understand you to say that any other part of your body than your hands touched any part of the dynamo?

A. My two hands on the two—the positive and negative brushes—and my head lying against the iron of the machine.

Q. The frame of the machine?

A. The frame of the machine—the frame of the machine that kept the machine together. 1819

Q. Were you at that time a perfectly sober man?

A. Yes, sir.

Q. And are still, are you?

A. Yes, sir; I take a glass of lager the same as the rest of us do.

Q. Are you still in the electrical business?

A. Yes, sir.

Q. I didn't know but you might have gone on the tage sometime?

1820 A. Why would that be.

Mr. Cockran:

That is because you are a sober man.

Q. How long after this accident was it that you slid down stairs?

A. That would be I should think—it was about eight o'clock.

Q. That night.

1821 A. Yes: yes about half-past seven or eight—about the time the people began to come in. They had to get a hack to bring them in.

Q. Did you slide down the stairs or down the balusters?

A. Down the stairs.

Q. Might you not have raked up your buttocks at that time?

A. I had no power—I didn't have power enough to get on the balusters, to control myself.

1822 Q. Mr. Stevens, are you the man that the newspapers have had articles about, and have stated that you were buried in the ground to get the electricity out of you?

A. I never was buried; I was laid on the ground; that was done by an inexperienced man.

Q. Do you think the burying in the ground had anything to do with the recovery?

A. That is something I cannot say anything about.

Q. You do not claim to be an electrician?

1823 A. No, sir; I do not.

Q. And yet you say you put in this dynamo?

A. Yes, sir.

Q. That is to say you put it up?

A. I have had practical experience, working on it, but when you come down to electricians, there are very few of them. We make a few in Boston—turn them out at the Technology, but they are no good. I would rather have a man that grows up with the business.

Q. Now, how is the framework that you have spoken of—how far is it from these brushes—how far is it above the brushes? 1824

A. A 25-light machine will stand about that high (indicating).

By the Referee:

Q. That is about four feet?

A. Yes, sir, and then these bars that run across there are about an inch and seven-eighths—these iron bars that go from each end of the field right through—in between the space of this field—here is one side of the field here and here is an air space. Those bars go right across that machine (indicating). 1825

Q. The stenographer cannot get that. Will you illustrate that?

A. I can illustrate that on paper if you would like it. From the commutator to where my head would lie on the machine—from the brushes it would be about 18 or 19 inches, at a rough guess. 1826

Q. Which hand do you say touched the negative brush?

A. The right hand—at least—yes, the right hand. I was standing facing the machine this way (indicating) it was my right hand.

Q. Your right hand touched first?

A. Yes, sir.

Q. How did your right hand pass under the framework, or under the commutator of the machine? 1827

A. I struck it in front of the machine.

Q. And it passed in front?

A. No work in front of the commutator. The machine sticks out in front of the armature; to shift the armature it had to go right in direct.

Q. The machine stood about four feet high?

A. Yes.

Q. And there is a framework across the top?

A. It is round.

1828 Q. The what is round?

A. The field is round; the end of the field is round, but it is oblong like a barrel.

Q. And you touched your head on the top?

A. On that side of it; I couldn't get on the top of it.

Q. When standing up perfectly erect could you see both brushes of the dynamo?

A. I don't remember about that.

1829 Q. I am speaking about an average machine?

A. When you stand up straight?

Q. Yes.

A. Oh, you can not stand up at a distance and see the brushes. I thought you said a 25-light machine. If a 25-light machine was over by that door I don't know but what I might stand up beside the machine and see the brushes.

Q. My question was: When you stood up alongside of the machine could you see the brushes?

1830 A. Oh, certainly.

By the Referee:

Q. Let me ask you just one question. As soon as you got hold of both of those brushes—you did get hold of both of them, didn't you?

A. Yes, sir.

Q. Did you immediately lose consciousness?

A. In a few seconds I commenced to fill up.

1831 Q. What was it like when you felt this sensation?

A. I knew I had got to go when that came.

Q. How long did that last?

A. Very short.

Q. A couple of seconds?

A. Yes; it didn't give time to think of anything.

Q. And then you lost consciousness?

A. And then I lost consciousness; yes, sir.

Re-direct examination by Mr. Cockran: 1832

Q. Now, about the voltage of this machine. Were each of these machines run at a steady voltage?

A. That 10-light machine, coupled in with the 25, it wouldn't increase the voltage only as long as it is there. If I had short circuited the positive and negative of both machines then I would have had the double dose of both machines.

Q. That would have amounted to how much?

A. I don't know exactly; a good deal more. 1833

Q. How do you fix 1,450 volts as the amount you received?

A. That is on the lamps. They figure a lamp about 45 volts, but, of course, there is no doubt, as we were running there that we were running a great deal stronger, because we were trying to outdo the United States.

Q. But at the rate you figure, you figure 45 volts to the lamp? 1834

A. Yes, sir.

Q. You have no doubt about that; you are positive of that?

A. Outside of this building, I should say that I received a great deal more than what I put it at here. While I am here I say it small enough.

Q. You keep inside of the bounds?

A. Yes, sir.

Q. The reason is because you used to run them higher? 1835

A. Our idea was to run the best lamps, and if we could carry our current up higher and make our lamps fuller we got more contracts for lamps.

Q. And as a general thing you ran your machines higher than they are generally run?

A. We ran them up and gave an exhibition. We made the United States Company weaken, bought them out, and went into their station, sold their stock and skipped.

1836 Q. Was that in any way connected with the voltage?

A. Was it in any way connected?

Q. Yes.

A. Yes, you can force a machine up.

Q. That is what I want to get, Mr. Stevens. What I want to get at is what the voltage was?

A. We will call it a 10-ampere current.

Q. How many volts?

1837 A. That is so many volts to a lamp.

Q. How many volts?

A. Thirty-two lamps would be—

Q. (Interrupting.) How many volts to each lamp?

A. Forty-five.

Q. Are you sure it wasn't less than 45?

A. Yes, sir.

Re-cross Examination by Mr. Poste:

1838 Q. You are not sure about the number of lamps that were actually burning at that time?

A. Yes, I can nearly vouch for it right here.

Q. What is your source of information?

A. By counting them up while I was in the place —the place where they were located.

Q. They were scattered around the city?

A. They were scattered around the city.

Q. Out on the streets?

1839 A. Out on the streets and inside of buildings and in stores.

Q. How do you know that those inside of the stores were actually burning?

A. We suppose that when we start up that every lamp will start. Maybe one or two will not start.

Q. How long had you been down stairs before this accident happened?

A. I think I got right out of my team and went right down.

Q. Was the machine started? 1840

A. Yes, sir; Mr. Hart started up.

By the Referee:

Q. Were there lights in the building there?

A. There was one light in the tell-tale.

Q. Was that burning?

A. I won't say positively whether it was or not.

By Mr. Cockran:

1841

Q. Had you got well going at that time?

A. Oh, yes, they were going.

Q. I will ask you this because it is a matter in point. For the purpose of calculating the voltage, would it make any difference whether the lamps were burning or not?

A. The more the machine is generating the more the voltage on the machine.

Q. You turned it off?

A. I short circuited, and of course that is a question that is doubtful. When I short circuited that machine—whether I short circuited all those lamps or not. 1842

Q. That is when you fell?

A. That is when I was on the machine. But when I fell and pulled that brush from the machine I opened the circuit. Of course, then the lamps went out.

Q. Before you fell on the machine—before you touched it, as I understand, you had turned on the power? 1843

A. The power was on and the machine had run up to full speed.

Q. And that was the same whether the lamps were burning or not?

A. Yes, sir.

Q. The machine was going?

A. The machine had been turned on and was generating, and whatever there was I got it.

1844 By Mr. Poste:

Q. You have spoken of a regulator, haven't you?

A. Yes, sir, there is a regulator on the side.

Q. What do you mean by that?

A. There is a push-bolt—

Q. What is the effect of it on the machine?

A. Raises and lowers. If the machine is short circuited that draws it up and throws your brushes on the weakest part of the machine so as not to burn
1845 the armature out. If that lode is on the machine that goes down at a dead standstill. When the machine is not generating the big part of the brush is lying on its resting place. When the machine is generating that regulates to carry it back and forth.

Q. Is the movement or position of that regulator affected in any way by the number of lights that are burning?

A. Yes, sir.

1846 Q. Does it operate the same as the governor on a steam-engine?

A. Similar to that. Instead of going up and down, the governor is reversible. That is where the fight is going on with the Thomson-Houston people—is the saving of the larger armature on a Thomson-Houston in tipping the brushes to the weakest point, saving the armature of the machine.

Q. Suppose that nearly all the lights connected with that machine were disconnected from the ma-
1847 chine, or extinguished in any way?

A. The regulator would be up.

Q. But if burning it would have been down?

A. But if burning it would have been down. You can judge pretty near by two or three lights—a careful man can—about how many lights are running on the machine.

Q. Does that regulator effect the voltage or the current of the machine?

A. I can't answer that, because I never talked with 1848
any gentleman in particular about that.

Q. Do you know what kind of a current this machine produced—alternating or continuous?

A. Continuous current, an arc-light machine.

Q. That is indicated, I suppose, by the fact that it has a commutator?

A. It is the way the machine is constructed.

By the Referee: 1849

Q. You came pretty near getting a commutation ticket to transfer you very rapidly?

A. I got all I wanted of it.

Q. To another sphere?

A. I wouldn't undertake to go through what I went through there for thousands of dollars.

(The witness's person exhibits a white scar on the inside of the second finger with the third finger and a
similar scar on the second finger of the left hand and 1850
the first finger of the left hand.)

Q. You say those are where you struck the two brushes?

A. That is the part that went on to the two brushes.

Arthur Eastman Colgate, called as a witness on behalf of the Relator, being duly sworn by the Referee,
testified as follows: 1851

Direct examination by Mr. Cockran:

Q. What is your business?

A. Experimenting with electrical machinery.

Q. Are you employed by any of the light companies now?

A. I am employed by one concern, the Western Electric Company.

1852 Q. Do you know Mr. Harold P. Brown?

A. Yes, sir.

Q. Who describes himself as an electrical engineer?

A. Yes, as I have heard.

Q. Do you remember assisting at some experiments conducted by him upon dogs?

A. Yes, sir.

Q. Where were they conducted?

1853 A. At Orange.

Q. At the Edison laboratory?

A. Yes, sir.

Q. Can you describe to the Referee the effect of these experiments on the dogs; how it affected them as to pain or otherwise?

The Referee:

Q. How they acted?

1854 A. The dog acted as if the agony was something awful.

By the Referee:

Q. What did they do?

A. They straightened out, straightened the muscles of the back and the fore-legs, and the dog howled in a fearful manner.

By Mr. Cockran:

1855 Q. Did they undergo any contortions?

A. Yes, they did considerable.

Q. Were they all killed instantaneously?

A. No, sir.

Q. How did some of them behave under the influence?

A. There was a stiffening of the muscles, and the dogs howled for a few moments; afterward they appeared to be dazed; and when Mr. Brown repeated the experiments with some dogs—quite a number of 1856 dogs—he would have to give them quite a number of shocks before they would die.

Q. Were there any that he did not kill at all?

A. Yes, sir, one dog.

Q. Was there any dog that was killed by other means?

A. I don't know whether Mr. Brown was there at that experiment or not. It was before I knew Mr. Brown.

Q. Was it a similar experiment? 1857

A. Yes, sir.

Q. There was a series of experiments there, was there not?

A. Yes, sir.

Q. Was it about the same time?

A. I think this was about a week or so before Mr. Brown came there.

Q. Who was experimenting then?

A. Mr. Edison.

Q. Himself? 1858

A. He was superintending the experiments. They were under his superintendence.

Q. Was Mr. Kennelly there?

A. Yes, sir.

Q. Was he one of the gentlemen who assisted Mr. Brown in his researches?

A. Yes, sir.

Q. In these experiments, conducted by Mr. Edison, were there any dogs that resisted the current? 1859

A. One dog was made insensible by the shock; afterward the dog got up and commenced to walk off, and I hit him with a brick.

Q. And that shock proved fatal, didn't it?

A. Yes, the shock proved fatal.

Cross-examination by Mr. Poste:

Q. Do you know what kind of a dynamo was in use at that time?

1860 A. Yes, sir; Edison's dynamo, warranted to give between 1,100 and 1,400 volts; somewhere around there.

By Mr. Cockran:

Q. One thousand four hundred volts?

A. Yes.

Q. What dynamo?

A. Continuous.

1861 By Mr. Poste:

Q. Continuous current or alternating?

A. Continuous.

New York, July 19, 1889.

Met pursuant to adjournment.

1862 Present, counsel as before.

Alfred West, called as a witness on behalf of the Relator, being duly sworn testified as follows:

By Mr. Cockran:

Q. What is your business?

A. Speculator.

1863 Q. Where do you reside?

A. 441 West 47th Street.

Q. Did you ever have any experience with the lightning of a personal character?

A. Yes, sir.

Q. Will you describe it, please, to the Referee?

A. You would like to have a description of when and how?

Q. Oh, yes, that is all involved in the description of the experience?

A. Well, sir, in either 1880 or 1881—I forget 1864 which—in June, about the 10th, I was on the Palisades at Fort Lee, on the hill. I stood in conversation with two friends talking, within about 15, or maybe 10 feet from a large tree. It was a muggy afternoon about 2 o'clock. I heard a shock which seemed to be an explosion, and that ended my experience. I can't say how long I laid on the ground, but when I came to I was about 20 feet from the place where I originally stood, and just as I did come to I heard somebody say, 1865 "They are all dead." Of course it went through my brain, and I said, "Yes, and me among them," to myself in my brain. Then I didn't know anything again until five or six minutes.

Q. You say you were about 20 feet away? Were you thrown that 20 feet?

A. Yes, sir, I was thrown that 20 feet.

Q. Thrown that distance by the shock?

A. Yes, sir; I then swooned away again, had no power over myself, I guess for five minutes, and when 1866 I came to it was raining very hard. I still laid there; and about three or four minutes after that—the people heard the shock on the hill and they all came to see what damage was done. They picked me up and carried me in to a platform and I suppose I was 25 minutes on the platform before I realized my position —20 minutes at least. I had no use of my body—that is, from my waist down. My left hand, the thumb was tied up with those four fingers in that position, 1867 and they were up in under here.

Q. What is that?

A. I say my left hand was tied up in that position. (Witness illustrates as follows: Thumb bent over in the hand between the fingers, and fingers pressed closely together, and the hand up under the chin on the left side.)

The Witness:

(Continuing). And the hand up under the chin in

1868 that position, and I suppose if you had a rope fastened to it and a horse hitched to it, you couldn't pull it out.

Q. Couldn't pull the hand out from that position?

A. Yes, sir.

Q. What did they try to do—did they try to do it?

A. Yes, sir, a number of my friends.

Q. Tried to pull your hand out straight?

A. Yes, sir, tried to get it out, and couldn't get it out. The only use I had of my body was my right hand.

1869 Q. Was your right hand free?

A. Yes, sir; the right hand I could use.

Q. You could use it all right?

A. Yes, sir, even after I was carried from the platform, I didn't know that I had anything on to me from the waist down. I had no feeling. But after I got in there, with this hand on here—I took this hand to lift this leg (indicating) and I couldn't do it.

Q. With the right hand you tried to lift your

1870 right leg up?

A. Yes, sir. It seemed as if it weighed a ton. I tried to lift the other one, and I could not lift that up. Well, I said, "They are both gone," to myself. There was a friend of mine that got struck with lightning at the same time with me. He was lying 20 feet from me. He said, "Boys, good-by, I am going to die." I said, "You sucker, go on and die; I am going to live if I can."

1871 Q. Did he accept your invitation and die, or did he reject it and live?

A. Oh, no; he was willing to go himself. A friend of mine said to me, "Do you want anything, West?" I said, "Yes, give me a little brandy and water."

Q. That was the first sign of your returning reason?

A. Yes, I took a little brandy and water, and another friend stood alongside of me, and he said, "Well, what can I do for you." I said, "I tell you what you

can do for me. You can get me a cup of tea. It 1872
knocked the belly out of me and I am hungry."

Q. You became conscious that you were hungry?

A. Yes, sir.

Q. At this time were you able to use your legs at all?

A. Not yet. This young man that lived there, his
father was a doctor, and they lived maybe a quarter of
a mile from where this happened. They sent right for
his father, and his father came over, and of course his 1873
attention was all given to his own son; and somebody
said, "Doctor, what can we do for Mr. West?" He
came over and looked at me and he said, "Put his feet
in warm water, and just pull on his toes the same as
you milk a cow." They done so, and I could feel the
electricity go out of me.

Q. How did you feel it go out, what kind of a sensation did it give?

A. The same as though you would strike your
elbow and you could feel it down the fingers, a tingling 1874
sensation all down from the elbow.

Q. A tingling sensation?.

A. Yes, sir; still with this arm fastened up here,
they got hold of this, and tried to get it out, and
couldn't get it out. They asked him about that. I
said to him, "Doctor, do you think I am paralyzed?"
He said, "I guess not, I guess they will bring you all
right." They put hot water on that until it ran all
down me. Finally they got out the thumb and then 1875
the fingers, and then they got at it and they began to
pull. The electricity all went out of my hand the
same as out of my feet. I got hold of it, and found I
could use it, and then I said, "I guess I am all right."
They worked at me, I guess, fifteen minutes, and
finally I got around all right and I came home. I saw
the doctor, sent for the doctor—oh, I am a little ahead
of my story. When I was struck I was struck right
between the upper, the top button of my vest. It was

1876 a pea hole, just about the size of a pea. You could put a pea through.

Q. Through what?

A. Through my vest and two shirts; I was burned; that is, the hair all off of my breast and my privates, and it struck off over this side.

Q. Over your right side?

A. Over my right side, and over my knees, and down this side of my leg (indicating).

1877

By the Referee:

Q. Inside of the right leg?

A. Inside of the right leg, and so off into the left foot.

By Mr. Cockran:

Q. Whereabouts in the left foot?

A. It went right across, struck the left foot, tore the
1878 top of the shoe. It went in here and tore off the top of the shoe.

Q. Tore your shoe off?

A. Tore my shoe off, yes, sir. I forgot it this morning or I would have brought my shoes down to let you look at them. I have got them as a relic.

Q. Did it tear anything but your shoes?

A. It tore my pants, drawers, shoes and stockings off my feet, so that I had to take handkerchiefs to tie
1879 around my legs so as to get home. When I got home I sent for the doctor, and he came and looked at me. I told him what it was. He says, "Well, Jersey lightning is pretty strong stuff."

Q. Did he mean the liquid?

A. He possibly might have meant the liquid; I do not know.

Q. How long was it before you got over that?

A. I was in bed 21 days. I was burned a sixteenth of an inch, the width of those four fingers.

Q. Where? 1880

A. From my breast, here, the direction I have given you, down to the end of my toe.

Q. And the burn was about the width of your four fingers?

A. Yes.

Q. Did it make a track around your body, in the direction you described?

A. Yes, sir; in the direction I have described.

Q. Did it affect any article you wore, where it came in contact with you? 1881

A. Yes, my watch and chain.

Q. How did it affect that?

A. I had a silver chain, and it twisted that all up in a knot and threw my watch about 25 feet from where I was; I found it afterward.

Q. Threw it off your body?

A. Yes, sir.

Q. Tore it right off?

A. Tore it off. 1882

Q. You said you were standing near a tree?

A. Yes, sir.

Q. Did the tree show any effects of the thunderbolt?

A. The tree, I suppose, was—the tree was skinned, there, about 20 feet—15 or 20 feet, about 12 inches wide of bark taken right off the tree, the whole length from the lower branch down.

By the Referee: 1883

Q. How near were you to the trunk of the tree?

By Mr. Cockran:

Q. When you were struck?

A. About 10 feet from the tree.

Q. This current, as I understand it, did not go right down your leg, but twisted around?

A. It struck me here (indicating).

1884 Q. Let us name it. It struck you right on the breast?

A. Yes, struck me right on the breast.

Q. Then it went down laterally to your right side?

A. Yes, and so on down under the knee, and came right down on this side, and down around here (indicating).

Q. Came down the side?

A. Yes, sir.

1885 Q. Turned down the right side of your thigh as far as your knee?

A. Yes, sir.

Q. And then went under the knee?

A. And then went under the knee.

Q. Then down the left side of your right leg?

A. Yes, sir, to the toe of my shoe.

Q. Tore off the whole shoe and all the clothes as it went down?

A. Yes, sir.

1886 Q. The whole shoe?

A. Yes, sir.

Q. The whole right shoe?

A. Yes, sir. The whole shoe was all torn to pieces.

Q. And then passed over and struck the toe of your left shoe?

A. Yes, sir.

Q. Under the big toe of your left foot?

A. Yes, sir.

1887 Q. And came out where?

A. Right at the big toe.

Q. Tearing the leather as it went along?

A. Yes, sir.

Cross-examination by Mr. Poste:

Q. Had it been raining that afternoon?

A. Not before that.

Q. Were you under the tree that you have described?

A. Well, of course, the tree partly covered me. The tree was about 10 feet from where I stood. 1888

Q. What kind of a tree was it?

A. I can't tell. It was a very large tree—a very large one.

Q. Were the branches high from the ground or near the ground?

A. What is that?

Q. Were the branches high from the ground?

A. The lowest branch, I suppose, was 15 feet away from the ground. 1889

By Mr. Cockran:

Q. Mr. West, in order just to complete your testimony, would you mind mentioning the name of the person who was with you?

A. I couldn't tell to save my life.

Q. Who was the doctor that attended you?

A. My doctor? 1890

Q. Yes?

A. Dr. Campbell.

Q. Where does he live?

A. Forty-second street and Eighth avenue.

Q. You don't know the name of the doctor over in Jersey?

A. No, sir.

Q. You were at Fort Lee?

A. Yes, sir.

Q. And he resided in that neighborhood? 1891

A. Yes, sir.

By Mr. Poste:

Q. Do you remember what kind of clothing you had on?

A. What kind of clothing I had on?

Q. Yes, was it woollen or linen?

A. Woollen—I say woollen—it was an ordinary

1892 spring suit. I don't know whether you call it cotton or linen, or what.

Q. You say there was a hole through your vest and two shirts?

A. Through my vest and both shirts about the size of a pea.

Q. Was there any metal about the spot where the lightning passed through your vest?

A. No, sir.

1893 Q. Buttons, the buttons were not metal?

A. The same as an ordinary vest button, they might have been bone buttons.

Q. Was your watch chain fastened to your vest at that point?

A. Yes, sir.

Q. Where the hole was?

A. Within one hole of it.

Q. What was the mark on your body immediately under that hole?

1894 A. Well, sir, from here (indicating) up to my neck was marked all over the same as forked lightning that you see go through the air.

Q. You say it burned the hair off your breast?

A. Yes, sir; burned all the hair off.

Q. Did it rupture the skin aside from the burn?

A. Yes.

Q. How?

A. It blistered it.

1895 Q. Blistered it?

A. Yes.

Q. That is what I meant; it blistered it?

A. It turned to a blister. I was under the doctor's care for 21 days, and was bathed with lime water and laudanum—some mixture that he gave me—at least four or five times a day, with cotton on it.

Q. I call your attention to this path of the burning around your body. Was it uniform—that is, was the degree of the burning uniform throughout the entire course of it, or was it deeper in some places than in others? 1896

A. No, sir; all just about the same. I have got three spots just above the ankle bone, where I suppose I got a little cold coming home, having nothing to cover it only just my handkerchief.

Q. I understood you to say the tree was skinned. What do you mean by that?

A. The bark was taken off it.

Q. Any branches torn off? 1897

A. No, sir.

Q. Did you see the flash?

A. No, sir.

Q. How soon after that did you see the tree?

A. How soon?

Q. Yes.

A. Well, immediately after.

Q. I mean how soon did you recover so as to go out to the place of the accident? Did you visit the place of the accident after you recovered? 1898

A. Oh, yes; as soon as I got well enough to go back, I went back.

Q. Was the earth excavated at the foot of the tree?

A. Not that I know of.

Q. You testified that you heard the thunder?

A. No, I didn't testify that I heard any thunder; I heard an explosion.

By the Referee: 1899

Q. Did you lose consciousness immediately, as soon as you were struck?

A. Yes, sir; when I heard this explosion that is the last I knew.

Q. You didn't suffer any pain at that time until you began to regain consciousness, then the pain began?

A. Yes, sir.

Q. So far as the blow was concerned, the loss of

1900 consciousness was so immediate that it did not cause you any suffering?

A. No.

T. CARPENTER SMITH called as a witness on behalf of the Relator, being duly affirmed by the Referee, testified as follows:

Direct examination by Mr. Cockran:

1901 Q. Mr. Smith, what is your occupation?

A. Electrical engineer.

Q. How long have you been devoted to the pursuit of electrical engineering?

A. At intervals since 1875.

Q. Are you familiar with the machine that is known—what we call here a Westinghouse dynamo?

A. Yes, sir.

Q. Do you know the kind of current that it generates?

1902 A. Yes, sir.

Q. Now, Mr. Smith, did you ever receive a shock from an alternating current?

A. Yes, sir.

Q. Will you state how you received it and what the effect was?

A. I have received a number of them.

Q. Have you ever received one of 1,000 volts?

A. Yes, sir.

1903 Q. That is, a shock from an ordinary dynamo?

A. Yes, sir.

Q. Such a one as is described here?

A. Yes, sir. I understand that is the ordinary Westinghouse electric-lighting machine.

Q. It is understood that that is the machine. Will you tell us how you fared with the Westinghouse dynamo?

A. The first shock that I got was in the station of the Keystone Light & Power Company, in Philadel-

phia. We had started up the machines shortly before 1904
that—I had started them up. We had been running
a direct-current station there and we changed it over
to an alternating current, and I was down there showing
the man about the station how to connect up the
various parts of the apparatus, and we were connecting
up our ground detector, and we had a double set
of bars on the board, one above and one below, and
while working at the board I pulled open the switches
on this lower bar, so as to lift the current off of it, but 1905
in the meantime another switch had been connected
in. There was a number of us working on the board,
and one of the other men had connected up a circuit
that enabled the upper and lower bars to work, and in
connecting that I had my hand right on one of these
bars from the machine and was standing there, and I
had a short wire in my other hand, with which I was
trying the ground detector on the upper b
knowing that the lower bars were charged, and in p
ting the wire on the upper bar I tried it on the one 1906
bar and then I tried it on the other. I had tried it
two or three times before, and when I tried it again I
put my hand, in carelessness—I wasn't looking just
what I was doing—I put my hand on the upper bar
that was charged with the opposite polarity from the
one I had my hand on. I got the back of my hand up
against it, and I let go.

Q. Did you let go with alacrity?

A. As quickly as I conveniently could. 1907

Q. Was there anything that interfered with your letting go?

A. Nothing except that I was leaning forward—my weight was forward—and when my legs gave way under me I drove myself onto it and fell on my knees—as far as I recollect—I am not quite clear about it. I was quite stunned for a few minutes.

Q. Was that all that you experienced?

A. I suffered as you usually do from those shocks.

1908 Q. That is what I want you to describe. I want you to describe your sensations—what occurred when you came in contact, right from the beginning?

A. If anybody has ever had it, it is a good deal easier to understand it.

Q. We are trying to see whether anybody ever gets it?

A. I hope you will succeed, for it is not pleasant.

Q. Go on and tell us what it was?

1909 A. Well the best description that I have heard of it was given by a young fellow who got a shock of that kind.

Q. Can you give it from your own experience?

A. Yes, sir.

Q. Go on.

A. The best way that I can explain it is that I thought it knocked the filling out of my teeth. That is the best description. It is a feeling as though you were being struck, with a bundle of loose rods, a rat-

1910 tling kind of blow.

Q. You were struck where?

A. All over. I felt it most in the head.

Q. Felt as though you had been struck all over your body?

A. Yes, sir; it drew me up all over. But the most effect I had was on the back of the head.

Q. You felt as if you were being struck by a bundle of loose rods?

1911 A. It was as if I was struck by a great number of things at the same time. I recollect distinctly, because I thought it was a direct-current shock, because it had a different feeling. A direct-current shock is one dead blow. You feel as if, with the alternating—you feel as if you had been struck by a number.

Q. In one case you feel as if you had been struck by a brick, and in the other case by a number of bricks?

A. Yes, sir; that is about the description of it.

Q. How long did that sensation last, Mr. Smith?

A. It seemed to me for about ten or fifteen seconds; 1912
I don't suppose probably it was more than four or five.

Q. Did you lose consciousness?

A. I was made stupid, but I was not stunned.

Q. Just made stupid?

A. I was a kind of dazed for a half of an hour afterward.

Q. How long did this contact last altogether?

A. I don't know; it seems longer when you are in that position than it really is, but, I suppose, it was 1913
two or three seconds while I was there.

Q. As I understand you, you fell forward?

A. Fell forward. I was leaning over in this way, stooping down, and my lower hand was resting on the bar, and my other hand came down on this bar, so that when I fell forward my weight was on my hand; I fell on the floor. My hands gave way and I fell down clear of the whole thing on the floor.

Q. You fell of your own weight?

A. Yes, sir; my legs gave way under me. 1914

Q. Did your legs give way from the fact that your body lost its balance; or was it from the shock?

A. From the shock. The shock drew me up.

Q. You recovered from the effects of that after half an hour?

A. Oh, yes; in fifteen minutes the effect was all gone.

Q. And you were able to travel around?

A. Except I was burned. 1915

Q. Were you burned?

A. Yes, sir; I was burned on the back of the hand.

Q. How deeply?

A. It didn't burn very deep; it destroyed the skin on the back of the hand; it was entirely a surface burn; it didn't leave any marks.

Q. It just took the cuticle off?

A. Yes; just like a good sharp burn.

Q. How much of a space did it cover?

1916 A. Just on the back of the hand.

Q. Just the space that was in contact?

A. Just the space that was in contact with the bar.

Q. With the bar?

A. Yes, sir.

Q. Let me ask you this, Mr. Smith; I am afraid to go into the technical terms: Did you get the full shock of that current?

A. Yes, sir.

1917 Q. The full shock?

A. Repeat the question.

Q. Did you get the full shock?

A. The full shock right from the machine; those bars are connected right with the machine.

Q. Would the shock that you received right close to the machine like that, when you catch the two poles—would that be greater than you would receive say a mile off?

A. Yes.

1918

By the Referee:

Q. If you had hold of a wire?

A. Yes.

By Mr. Cockran:

Q. If you caught hold of a wire?

A. Yes; according to the length of the wire you have in the circuit—I should judge so—I didn't try it.
1919 It seems about the same no matter where you get it.

Q. I mean under the general law that regulates the distribution of a power of these currents. Of course, I cannot speak from personal experience, but suppose a person stood a mile from this machine and took the two wires—the negative and positive wires—in his hands, would he receive just as much of a shock as you received right there at the machine?

A. Just the same, except with the difference in the loss of the line or wire.

Q. That is what I mean. How much loss would that be? 1920

A. It would depend on the size of the wire running out on the line, but under all ordinary conditions I should say he would receive just as much.

Q. You have no doubt but what you were in the most favorable position?

A. I have no doubt but what I was in the most favorable position.

The Referee: 1921

It doesn't clearly appear what the capacity of this dynamo was.

Mr. Cockran:

The ordinary one: the same as is to be used in this execution.

The Witness: 1922

Westinghouse No. 1.

Q. What voltage was it producing at that time?

A. Well, we would call it producing about 1,000 volts—probably 1,050, to allow for the lights we were running.

Q. You keep all these going at the same speed?

A. Yes, the same speed. That was in the ordinary condition for lighting: we were doing lighting at that time. 1923

Q. What is the ampere rate of that machine?

A. It is a 35-ampere machine.

Q. 1,050 volts, 35 amperes?

A. Yes, sir.

Q. Did you ever receive any other shock?

A. Yes, sir.

Q. Let me ask you this first; does the ampere rate of the machine differ, or are they all the same—do they differ among themselves?

1924 A. Do you mean the different sizes of the machine?

Q. No, I understand that all these machines—these ordinary machines that we speak of, No. 1, the one that we have evidence here about, which was described by Harold P. Brown, that runs about 1,050 volts—it is called 1,000 volts but really it generates 1,050 volts—have they all got the same rate of amperes?

A. As far as I know. Of course, there may be some trifling change in the manufacture from time to time.
1925 These machines that I speak of—the ordinary standard machine—giving a current of 35 amperes, and were intended to carry 1,650 candle-power lamps, that were being manufactured by the company.

Q. There isn't any variation in the capacity of the machines?

A. Nothing, so far as I know.

Q. Measured either by amperes or volts?

A. As far as I know they are all alike.

Q. Did you ever get any other shocks?

1926 A. Yes, sir—you mean from the alternating-current machine.

Q. Yes.

A. Yes, sir.

Q. Where did you get that?

A. In Pittsburgh, in the Allegheny Lighting Company.

Q. How was that?

A. I got several there. The most of them occurred
1927 when we were coupling up the switch-board, or coupling converters in. I never did any of the converter work outside of the station.

Q. Did each of those give you the usual 1,050 volt shock?

A. Yes. sir.

Q. So that you have received it frequently?

A. Yes, sir; we don't count a 1,000-volt shock anything in the business—a man that is working around the current all the time—that is, under the ordinary conditions; I don't mean by that a man would go and take hold of it, but I don't know a lineman in my employ who hasn't had it time and time again. 1928

Mr. Poste:

That is not material. I would like an objection noted on the record.

The Referee:

Just ask him if he knows of a man receiving that amount of voltage. 1929

Q. I ask that question. Do you know of any man receiving that number of volts?

Mr. Poste:

Same objection.

A. Yes, sir. 1930

Q. Without serious effects?

A. Yes, sir; except the burns that they receive.

Q. You have said that you have known of men receiving that shock frequently without any other effect than receiving burns?

A. Yes, sir.

Q. Well, now, Mr. Smith, you have known of men receiving it and dying from it; haven't you?

A. No, sir; not to my personal knowledge. 1931

Q. You have heard of it, haven't you?

A. I have heard of it, yes, sir; but I never saw it.

Q. As an electrical engineer, do you regard that as an exception rather than the rule?

A. Decidedly an exception.

Q. You say of your own knowledge of men working with these machines, that there are very few that have not had it?

A. None that I have known in my employ.

1932 Q. And you have observed them at work continuously?

A. Yes, sir.

Q. You are engaged in that business yourself?

A. Yes, sir.

Q. Just describe some other shock that you received. You treat them as a matter of course, but we regard them as a serious matter?

A. I regard them as a serious matter, too, but I
1933 mean under the ordinary conditions of working. If a man gets a shock like that, he doesn't lay up; he shakes his fingers and thinks he was foolish to get in the road and goes on with his work.

Q. Will you tell us what other shock you have received, and your sensations?

A. There are so many that I don't know how to particularize; but I have had five or six, where I know it was 1,000 volts, right from the machine.

Q. Tell us about them?

1934 A. The one I can pick out as distinctly remembering, was a machine known as the 2,500-light machine at that time, but what is called now the old No. 3 machine.

Q. What kind of a machine is that?

A. That is a 1,000-volt machine with a current of 125 amperes.

Q. That is a larger machine?

A. Yes, a larger machine.

1935 Q. Was that an alternating current?

A. Yes, sir.

Q. Where did this occur?

A. Pittsburgh, same place.

Q. 125 amperes?

A. Yes, sir.

Q. That is a very strong machine—a formidable current?

A. Yes, sir.

Q. Is that stronger than what can be generated by

the ordinary machines, the one that has been described 1936
here?

A. Yes, sir.

Q. Will you tell us what your experience has been with that?

A. We had a couple of switches right at the machine itself, besides those on the switch-board, and the men had been working there, and one of the men told me that he thought that one of those switches was going to burn out, that it was getting hot—when he put 1937
his hand on it, it was getting hot. I went to examine them, and being a tall man I was stooping down and I got hold of the switch and I was working it gently, when one of the men came up to me and made an inquiry about a tool that he wanted. I stood up, and in standing up I brought the back of my hand against the metal of the switch; but that being only one pole, and the ground being dry, I did not feel it very much, and I went to point out to him where the tool was, and
I laid my hand upon this wire and the back of my 1938
hand came up against the other switch on the other side of the machine. He was standing close to me, and my arm struck him when I turned around.

Q. Then how did you feel?

A. It threw me forward four or five feet on my face just as if I had been struck a terrible blow. I did not know what had happened to me for a few seconds. I kept hold of the switch that I had hold of when I fell forward and it jerked it open, and the man ran and 1939
picked me up, and as he lifted me I looked around to see what had struck me and saw the switch open, and my first impulse was to go over and put the switch in so as to make the lights go.

Q. You were sensible enough then to attend to business?

A. Oh, yes; in a lighting station you have got to keep your lights burning. It is a matter of consciousness.

1940 Q. You have got to keep your lights going?

A. Got to keep them going.

Q. Whether you are killed or not?

A. Yes, you have got to keep your lights going. That is the first principle.

Q. And then keep your life going, if you can, afterward?

A. Yes, sir.

Q. Was your power of self-control suspended so
1941 long that the lights actually went out, do you know?

A. Well, I really was not affected at all mentally. As I say, I kind of staggered for a second or two, but the moment the man touched me and went to pick me up—he didn't have time—I got on my hands and knees, and just as quick as I turned around I saw that the switch was open and the lights out. I judge that I struck the other switch with the back of my hand. I found the shape outlined there.

Q. In what way?

1942 A. A black mark where it had scorched me.

Q. Did it burn?

A. It wasn't exactly burned. The hair was off, and just the mark on the back of the hand.

Q. Can you tell us any other experiences that you have had with the alternating current?

A. Yes, sir.

Q. That current was much stronger than the others you received, I understand?

1943 A. It was the same voltage, but three times the ampere capacity.

Q. Does that mean three times the electro-motive force?

A. No, sir; three times the quantity of current.

Q. Take it as a whole, I mean, was it a stronger current?

A. As a whole, decidedly stronger.

Q. About how much stronger than the one that is in use now?

A. About three times. 1944

Q. Three times the power?

A. Yes, more than three times, but we ordinarily rate it as three times.

Q. Can you give us any other experience which you have had with this alternating current?

A. Well, those are the only ones that I remember, particularly where there were other people with me and where I was thrown down with it. I have seen our other men take it. I have pulled them off the 1945 switch-board.

Q. Tell us in regard to any of those you have seen of men that you had to pull off the switch-board?

A. One man—we were coupling up a switch-board and, of course, we were very careful, and this man had been an arc-light lineman. He was one of our regular men, and he was accustomed to the usual chances of his business, had taken shocks in the ordinary way, and I selected him to couple it on the board, because I always liked the man who had been handling high- 1946 tension currents to do that, and I had him working there; we were coupling in the switch on these copper bars—we had a copper bar about half an inch in diameter running across the board, and in order to—we had little clips that we were clamping with screws, and the bar stood out from the board a little distance, and he got his hand behind those bars to hold the clips steady while he was screwing this, putting the screws into it, and he had his hand up behind the two bars; 1947 there were two bars about ten inches apart; his hand was up behind the lower bar and he was screwing the clip on the upper bar. And while he was working there the screw-driver slipped and he pitched over and brought his hand against the lower bar and touched his hand on it, and he hung for a second or two. I was working six feet away, and I heard him give a gasp, and I knew he had got a shock. As he took hold of it he put his other hand up, and as he put it

1948 up he was caught: I dragged him out; he was full on the board. I got hold of him and pulled him off. He was gagging, his eyes were turned up so that there was nothing but the white showing, and as I got to him I laid him on the ground and caught him by the elbows. I pulled him off and laid him on the ground, and pulled his arms, and as he raised up he drew his breath in that way. I says, "How are you?" He said, "God, but that was a bad one." I said, "I guess
1949 it was; how do you feel?" He said, "I feel pretty bad." At that time one of the other men who had been working there came running up with a cup of ice water, and he said, "How do you feel?" He said, "I guess it is all right now." I said, "Let me see your hands." His left hand, the whole inside of the palm, was burned to a crisp, and he had a big hole up here (indicating); but we did not see that at the time. The hole in the upper part of the hand we did not see. I supposed only his hand was burned, and then on the
1950 other hand the fingers and thumb, the upper part, was burned, and the skin was white and thickened up and blistered, and I gave him fifty cents and told him to go and get a big drink of whisky and call at the doctor's on the way home. We had a doctor in Pittsburgh who we used to send the men to if they got hurt.

Q. He took the first part of your advice, I suppose?

A. He did; then he came back after getting the
1951 drink of whisky; he wanted to come back and go to work.

Q. He didn't go to the doctor's?

A. No, sir; he said he was all right and wanted to go on working; I did not want him to work, because I was afraid of the burns on his hands; they were very serious, and we had had so much trouble with burns of that kind from the burn going under the skin. A man wouldn't know there was any burn there except the pain. It would be a little sore, and then inflammation would set in and give them a great deal of trouble. 1952.

Q. Let me ask you how do you mean, a burn under the skin?

A. The current would go in there (indicating) and would follow the blood-vessels and get under the skin—would leave no marks on the outside; and the man would be working on this trying to heal it; whereas it would be festering and gathering inside; it would keep getting worse.

1953 Q. You have testified to something on which I think we must have had some testimony yesterday. I want to ask you a question and see if we can develop it. Dr. Sachs testified here yesterday, as I remember, that, in his opinion, burning from contact with electrical apparatus like this would be burning by chemical operation in the system itself; that is to say, it would not be a burn such as would result from contact with a piece of hot iron, but more like a burn from vitriol?

A. I have always compared it to a burn from phosphorus; I was burned with phosphorus; for a time it seems to have that effect; it destroys the tissue, and you have to get that out before it will heal. 1954

Q. It doesn't leave any mark on the skin at all?

A. It will show where it entered the skin apparently, and then it seems to penetrate under the skin and shows no mark on the surface.

Q. Is there any mark where it enters the skin?

A. Yes, a hole or gathering, it may be.

1955 Q. Then the burn will go under the skin without any sign on the outside?

A. Yes, sir; once I had a burn where it followed in about an inch and that showed a red line on the outside. But in the case of this man it didn't show anything on the outside and when the burn was first discovered it was here about four inches above the wrist.

Q. That is to say, on the forearm?

1956 A. Yes, sir, about four inches above the wrist.

Q. You are speaking of the man you just testified about?

A. Yes, sir.

Q. Let me ask you: Was there anything visible up here (indicating)?

A. Yes, sir, a hole burned through the skin here, but the burn that extended from the hand did not reach this hole; just an ordinary burn from a skin 1957 contact with the wire; he was able to tell me afterward just how it occurred—how he had been using the screw-driver, and the screw-driver had slipped, and he had put his hand upon it. I saw him put his hand up, and the fire flew as soon as his hand touched the bar.

Q. Now, from this place in his hand where the hole indicated contact with the electrodes, how far did the burn extend under the skin showing no signs?

A. I think it extended—well, we could not tell very 1958 much whether there were signs on his hand or not. The whole hand was pretty badly burned just beyond the wrist; the doctor told me he was burned just beyond the wrist.

Q. There was no sign of a burn on the skin of the wrist at all?

A. No.

Q. This burn was under the skin?

A. Yes, this burn was under the skin.

1959 Q. When did it develop, do you know?

A. It developed about three days afterward; I was looking out for it, because we had had a case in Philadelphia of a man being burned in the same way.

Q. Tell us about that, was it an alternating current?

A. Well, I only saw the man and had his description.

Q. Did you see the burn?

A. Yes, I had known him; I had the same kind of burns myself.

Q. Did you ever have any burns under the skin? 1960

A. Yes, sir.

Q. Tell us about that.

A. It was on a direct-current machine.

Mr. Cockran:

I will reserve that.

Q. Can you tell us anything about the effect of the alternating current? 1961

(No answer.)

By the Referee:

Q. Was there a space from where this one entered the hand to where you could see the visible signs of the burning on the hand? Was there a space that was not burned on the surface; by the way, the hole was in the forearm?

A. Yes, sir.

Q. How large was the place where you say this hole was in the forearm? 1962

A. It was about an inch and a half long, in the direction of the length of the forearm, and about three-quarters of an inch wide.

Q. On the surface between those two places?

A. Yes, sir.

By Mr. Cockran:

Q. Now, Mr. Smith, do you recollect any other instances of shock received by yourself, or received by any man, and which came under your observation, from the alternating current? 1963

A. Yes, sir; we had a lineman in the street one day who was working on the—

By the Referee:

Q. Before you go to that, how much was the capacity of this machine that shocked this man?

1964 A. A thousand-volt machine.

Q. Running full capacity?

A. Yes, sir; running all the time on the machine.

Mr. Cockran:

That is right. I had forgotten to ask that question; I am glad you asked it.

By Mr. Cockran:

1965 Q. Proceed and tell us about this other man that was shocked that you were telling us about.

A. He was out on the street, and it was a very wet day; the ground was full of puddles of water, and we got word that some of our lines were crossed up the street by the man who had been cutting down some old telephone or telegraph wires, or something of that kind—old iron wires—and I sent a man out to clear up the trouble; and they got in the street—and we had at that time some underwriter's wire that we were 1966 using—we were replacing it—but we had some of it there.

Q. What do you mean by underwriter's wire?

A. It is common, cheap insulation; it is no good at all in wet weather; and these wires were hanging down, but they did not reach the street; I told the men before they went to be very careful, and one of the men was a new man—had only been there a few days—and he took hold of the end of one of these 1967 wires that were hanging there, and commenced to pull it down; and one of the other men shouted to him to lookout that standing in the water that way he might get a shock, and he gave another pull on it and it sawed through the underwriter's covering and he went flying all over the street.

Q. The man did?

A. Yes, sir; one of the other men ran up and pulled the wire away from his hand; he had the wire fast on his hand.

Q. How far was he thrown? 1968

A. A space of about six feet; I did not see the thing occur.

Q. He was thrown by the swing of the wire?

A. No, sir, he was convulsed; I did not see that, but the man came to me as soon as it happened; I did not see him actually get the shock.

Q. You cannot testify to that. My question was anything that you remember that came under your personal observation?

1969

A. The burn did.

Q. Not the shock?

A. Not the shock; the burn did.

Mr. Poste:

Then all this should be stricken out of the testimony.

Mr. Cockran:

I have no objection.

1970

Witness:

I understood you asked about the burn.

The Referee:

Strike out all of that except the fact that this witness sent the man out to do work on the line, and he came back exhibiting signs of a burn.

1971

Q. Tell us about the burn. You cannot tell us anything that occurred. You saw the burn?

A. Yes, sir; the man came down to the station right away.

Q. Describe the burn?

A. He had a burn between the finger and thumb—a hole about three-eighths of an inch in diameter, where the skin was completely destroyed, and the flesh in below looked as if it had been singed with a

1972 hot iron; it had a peculiar whitish look; I asked him how he felt, and he said he felt a terrible pain across the chest.

Q. Just tell us how the burn looked; was it one of these burns that weren't visible?

A. No, sir; all that I could see of that was right on the surface.

Q. I do not care anything about that. Do you know of any other case in which a person received the
1973 alternating current, under your own personal observations?

A. Yes, sir; I say I do not know a man in the station that did not.

Q. Well, let it stand at that. Will you tell us about the continuous current? Have you ever received any of that?

A. Yes, sir.

Q. Where did you receive that, Mr. Smith?

A. I received a very heavy shock at William Sellers
1974 & Co., in Philadelphia.

Q. Where?

A. A Brush machine.

Q. Just state how you got that?

A. I was putting in a Thomson-Houston machine at the time, and a Thomson-Houston machine was being put in their foundry, and it was to be coupled into one of the circuits that already ran through the building, and when I went up there I in-
1975 quired which circuit it was going to be coupled into, and they pointed out two wires which came down the wall—they were bare wires—all these wires were bare wires, put in a good many years ago. These wires came down the wall and were joined by a brass coupling, and I asked them if that was where they were going to couple the Thomson-Houston machine, and they said, "Yes;" and they asked me what time I would be ready, and I said, "I will be ready in time to light up tonight." When

I got it ready, it was getting pretty dark, and I had 1976
hurried a little, and I asked them if they were all ready, and one of the men standing there said, "We are all ready, couple in whenever you want," and I said, "All right." I climbed up on a ladder, took my screw-driver, and I took the couplings in the hand and pulled them open, and it knocked me flying; it had a current on, 28-lights on a 30-light machine.

Q. What voltage would that be?

A. That would be in the neighborhood of 1,400 1977
volts—something like that. It might be a little more or a little less.

Q. What ampere?

A. 9.6-ampere machine.

Q. You say it knocked you flying?

A. Yes, sir; knocked me off the ladder.

Q. You fell off the ladder?

A. It pitched me backward off the ladder, and I fell in a heap on the floor.

Q. What were your sensations? 1978

A. I felt as if I had been struck in the head; it was just a blinding flash of light.

Q. Have you ever been struck between the eyes, Mr. Smith, in your younger days?

A. Yes, sir.

Q. Was it any such feeling as that—a stunning blow between the eyes?

A. It was pretty heavy; heavier than any blow I
ever got; I was sickened by that—that turned me sick. 1979

Q. In what way? Just tell us?

A. Nausea. It pitched me off the ladder; I was kind of stunned by that, and the men were all standing back. They were just ordinary workmen around the place—they were none of them electric-light men. I said, "Why, there is current on that wire," and a man that was standing there said, "Why, you got hold of one of the 30-lighters;" I said, "Why the devil didn't you tell me so?" He said, "I didn't know you were

1980 going to take hold of it." I said, "You told me to couple into those wires." I said, "I will put them together again; your lights are out." I started to put them together again. The whole thing passed very quickly—and I went to climb up the ladder to take hold of them, and he said, "Look out; the machine is running." I said, "That is all right, I can fix that." I was so stupid that I was going to put the wires together—if he had not held me back I would have done so; I do not know what the result would have 1981 been.

Q. You started to do that, knowing that these wires were still just as bad as they had been?

A. I was stupefied? I was so stupid I did not realize what I had got. I was in pain and sick, but, as I say, my idea was to get the lights going again.

Q. Did you regard your determination to do that as the result of the blow, or simply your devotion to duty?

1982 A. I think it was just the impulse to get the wires together; I wouldn't hesitate to put them together as long as I knew they were charged; if I had known that they were charged I would have taken hold of them differently and would not have got a shock.

Q. Could you have taken hold of them differently and avoided the shock?

A. Yes, if I had known they were charged.

Q. How?

1983 A. I would have taken hold of them on one side and taken the handle of the screw-driver, which would have been an insulator, and would have pulled them out.

Q. You spoke of your being so stupid that you wanted to go up and set those wires again?

A. Yes, sir.

Q. Would you have done that if you had not had the shock, or was it the result of the shock?

A. No, sir; I would have looked for something to insulate myself with while I did it; I was going up to take them with my bare hands. 1984

Q. In other words, you consider you were out of your head?

A. Yes, sir; the shock had affected my head.

Q. You were, in fact, very much excited, but still capable of forming a design?

A. Yes, sir.

Q. And incapable of reasoning on it?

A. Yes, sir; that seems to be about it. 1985

Q. Are there any other instances in which you took electrical currents into your system?

A. Yes, sir; I got a shock from a 30-light Thomson-Houston machine, a 25-light machine running 30 lamps.

Q. How big a shock would that be?

A. That would be 1,400 to 1,500 volts—a little more or less than that, according to the way the machine was running.

Q. Where was that? 1986

A. In the store of Gusky & Co., in Pittsburgh. The machine would be rated as a fifteen-hundred-volt machine, but they very seldom run right up to that, so I got about fourteen hundred.

Q. That is about the minimum?

A. In the neighborhood of fourteen hundred; I should count it as that in ordinary practice.

Q. Will you tell us how you felt then?

A. The agent of the company at that time was with me, and he complained that the machine had not been going—the regulator had not been working, and the floor was wet, and the wires were lying right down on the floor, ordinary underwriter's wire, and I went in with my feet wet, and I looked at the machine, and from the way the regulator acted I thought there was a loose contact, and I stood on the floor, not noticing that I was standing right over one of these wires. It was sunk in a hole in the floor, and the floor was very 1987

1988 dirty, and I took hold of that—I took hold of the binding-post of the machine—and my foot was on the floor on this underwriter's wire; I couldn't let go, and I was getting a shunt right around the machine.

Q. You got the current then, from your right foot to your left arm?

A. Yes, sir; and while I was doubled up there I had a great deal of pain, and I hollered to him to shut it down, but, instead of stopping the engine, he
1989 opened the main circuit of the machine and I got the full charge.

Q. How did you feel then?

A. I felt as if I had been kicked by a mule. It knocked me about six or eight feet. I suppose it was the straightening out of my limbs.

Q. How long did you remain under the influence of that?

A. I laid there until Ringold came up and took hold of me and asked me if I was killed. He said,
1990 "Are you killed?" and I said, "No, but I feel like it." I asked him, "What in thunder did you open the circuit for?" He said, "I wanted to get you loose." I said, "You fool; it was the worst thing you could do; you gave me the full dose."

Q. About how many volts did you get when you got the whole dose?

A. It runs up beyond the actual voltage of the machine when you open the machine that way.

1991 Q. So that you got more than the 1,400 volts—the full voltage of the machine?

A. I should judge so. I have no means of knowing, but I got a tremendous shock.

Q. How long did it take you to get over that?

A. I felt sick for a week.

Q. What kind of sickness?

A. Nausea, as if you had a terrible beating; as if you were all worn out; all the muscles of the arm sore.

By the Referee: 1992

Q. Were you burned any?

A. On the feet. I kept hold of the machine. But wherever there were nails in my shoes I had little nail-prints on my feet. On the side of the foot there were little marks about the size of pin-holes burned through the skin.

By Mr. Cockran:

1993

Q. Through the skin?

A. On the thick skin on the sole of the foot.

Q. Was your hand burned?

A. No, sir, my hand was not burned.

Q. Mr. Smith, it seems to be monotonous to ask you about your experiences; you have had so many of them. Can you give us another?

A. I say there is a great many of them, but they are small ones and there is nothing particular to call my attention to them. There is nothing else to tell 1994
about them beyond that I got the current.

Q. About how many times do you think you got the current—first, we will say from the alternating machine—the Westinghouse dynamo?

A. I have taken it four times where I know that I got the whole machine—that is, either at the machine or at the switch-board, where I know I got the full current.

Q. And have you taken it at other times?

A. At other times on the machine—where we were 1995
handling converters and things like that—ground shocks, where the current would be grounded or leaking, and we would be standing on the damp ground and get it; but the four times that I do recollect I got it either at the switch-board or the machine itself.

Q. How many times did you get the continuous current?

A. I couldn't tell you, sir; every time I put a plant up.

1996 Q. About what strength was the continuous current?

A. On the continuous machines it would vary—most of these were ground shocks, so it would vary according to the position I was in on the line. The two that I speak of were the ones where I felt the effect of it for some time, and that is why I remember it particularly.

Q. These were the two where you received considerable over 1,400 volts? 1997

A. It must have been about that.

Q. At the switch-board or at the machine?

A. Yes, I must have got more than 1,400 volts.

Q. The full capacity of the machine is 1,400 volts?

A. Yes, sir.

Q. And it goes up above that?

A. Yes, sir; if you charge the field you can make it go above that. I got the full charge of the circuit, the fields and everything else.

1998

Cross-examination by Mr. Poste:

Q. What business are you in now, Mr. Smith?

A. General engineering, sir—the firm of M. R. Mickley, Jr. & Co., in Philadelphia; I am a partner; they deal in steam engines.

Q. Do you deal in dynamos?

A. Yes, sir.

1999 Q. Now, I call your attention to the first shock you described that you received in the Keystone Works. Give us the full title of the works?

A. Keystone Light & Power Co.—The Keystone Light & Power Co.

Q. You have spoken of the bars of that machine. I would like to have you describe the machine fully, so that the description may be put upon the minutes?

A. The bars are not part of the machine, sir; the bars are part of the switch-board.

Q. They are part of the switch-board? 2000

A. Yes, sir. There are a set of copper bars, sometimes two, sometimes four, or more, running parallel along the face of the board, and each alternate bar is connected directly with one side or the other of the machine. While there is no positive or negative pole to an alternating dynamo, we generally use it as a term of convenience. We speak of one being the positive and the other the negative.

Q. And these bars are merely conductors? 2001

A. They are conductors, sir; but they are connected directly with the terminals of the machine. So far as the lines are concerned they are terminals of the machine.

Q. About how far from the switch-board or the dynamo?

A. About four feet.

Q. About four feet?

A. Yes, sir.

Q. And these bars were directly connected with the terminals of the machine? 2002

A. Yes, sir.

Q. Now, describe a little more fully, if possible, than you did the first time, just what took place when you received that shock?

A. Well, as far as I know I had my hand on the positive bar—well, no, it was on the negative bar. I had my left hand on the lower set of bars, and I put my hand on the positive bar of the upper set.

Q. How high from the floor were these bars? 2003

A. One bar, I think, is about three feet from the floor, and the other, I should judge, about five feet. I am not quite sure of the distance.

Q. Did they extend horizontally?

A. Yes, sir, horizontally across the switch-board.

Q. Now, you have spoken of the negative bar; is that the higher or lower one?

A. In that case, as far as my recollection goes, it

2004 was the higher bar. Of course you understand there is no positive or negative; that is merely a conventional term we use.

Q. I am using it as that. Are those bars closely fixed to the board?

A. They are about—I suppose in that case they are about an inch or an inch and a half from the wall.

Q. What were you doing there?

A. I was testing the ground detector, which is a piece of apparatus that belongs to the system. 2005

Q. To find out leakage?

A. Yes, sir.

Q. What was the operation that you were performing; describe it?

A. We had the ground detector there, and the men thought it was out of order, and in order to try it I fixed it with a permanent ground—that is, I fixed it to an artificial ground there, so that I would know just what the matter was. Then I took one of the wires 2006 that led from it, and was trying it on the other bars to see if it had the same effect on both bars.

Q. Now, this ground detector—that is attached to the dynamo, or connected with the dynamo?

A. No, sir; it wasn't at that time. You connect the ground detector to each circuit in succession, when you are testing it, but I was not using the ground detector in its regular operation at all. I was merely trying the ground detector itself—testing that itself.

2007 Q. You say you had made a connection with the ground?

A. Yes, sir.

Q. Between what—between the ground and what?

A. Between the ground and the ground detector.

Q. What did you do then?

A. Then, as I say, I had this wire, which was an insulated wire, and the end of it was bared. I was touching these bars, first one and then the other, and something attracted my attention and instead of putting the wire on it I put my hand on it.

Q. Put your hand on the upper bar? 2008

A. On the lower bar of the upper set.

Q. You put your hand on the bar about three feet from the ground?

A. No, about five feet.

Q. What then took place?

A. As I told you, I got a very bad shock, and I pitched forward, my weight came forward, and I hung there; as I say, it seemed like a great deal longer than it really was, and then I fell down. 2009

Q. Now, did I understand you to say that both hands touched the bar, or both hands touched the bar, which, in the other case, was touched by the wire?

A. No, sir; both hands were on two separate bars, the one the upper bar of the lower set, the other the lower bar of the upper set.

Q. You didn't see the bar?

A. My hand was resting in this way (indicating) on the lower bar, but the other bar, the back of my hand, just as I put my hand up, it rested in that way. 2010

Q. Now, describe, in the same way, the shock you received at Pittsburgh. I want you to describe fully that shock at Pittsburgh?

A. I was standing by one of the machines examining a switch which one of the men had reported that he thought was defective, not working right, heating up, and I was stooping down examining the contact, working the switch gently, so as to see whether it was clean and in good condition, when one of the men 2011
spoke to me and asked me something about a tool, I think it was an eye-bolt for one of the machines, I don't know exactly, but I stood up to answer him, and in standing up, the switch being low down, I brought the whole of my hand against the metal of the switch. I had hold of the wooden handle before. But as I stood up I came in contact with the metal, I turned around to point out where it was, and in turning around he was in my way; he was standing close to

2012 me, and I had to bring my arm behind him to show him where it was. I was stooping this way, and he came up on the side here, and turned around and turned back ; I said, "There," and while I was turning around he turned, too, and knocked my arm, and it came in contact with the switch on the opposite side of the machine, and I was thrown forward on my face.

Q. Now, this switch arrangement is two wires, isn't it?

2013 A. No, sir; it is—the switch is a metal bar and slips in between two contact pieces. There is a wooden handle at the lower part to take hold of this bar that works.

Q. The stenographer cannot get that. Cannot you describe it so that the stenographer can get it on his minutes?

A. The switch was an ordinary jaw switch such as is used in electric-light work, consisting of a piece of copper or brass, which is pulled in and out on a hinge,

2014 works on a hinge, and when closed goes in between contact pieces which connect the two parts of the circuit together. When the handle is pulled outward it lifts both of these contact pieces and leaves a break in the circuit.

Q. There are two wires, aren't there; there are two lines of this circuit, of course?

A. Yes, sir.

Q. And is there a switch to each one?

2015 A. Yes, a switch on each line.

Q. Now, both of those lines of that circuit are on the switch-board?

A. This was not at the switch-board—this was at the machine.

Q. At the machine?

A. Yes, this was at the machine. We had separate switches, little switches and big switches, but they were separated from the machine. This stood right at the other end of the building. The machine stood a long way from the switch-board. We had those switch- 2016 boards so that if anything went wrong a man wouldn't have to run to the other end of the building to the switch-board, but if he was at the machine he could pull those switches open right there, which would have the same effect.

Q. Then in this contact you touched, am I to understand that you touched, the wire of each pole of the machine?

A. Yes, sir. 2017

Q. Were you between those wires; of course, it is all plain to you, but it is not to me, and it won't be to the Court?

A. I think I can explain, but it is hard to do it so that the stenographer can get it. Those switches were: one at the side of the machine and one in front of it.

Q. How far apart were they?

A. About three feet apart; something like that.

Q. And would that indicate the length of the machine, too? 2018

A. No, sir; they were a good deal closer together than the width of the machine, and I—it was just so that I could reach it comfortably standing holding on this handle; the natural length of my arm—my hand struck it.

By Mr. Cockran:

Q. You said this hand. Which hand do you mean?

A. The left hand. I had hold of the switch—this 2019 hand I struck with the switch.

Q. And what did you strike with your right hand?

A. The other switch or the other side of the machine.

By Mr. Poste:

Q. These switches have wooden handles?

A. The lower part of it is wood; the upper part is metal.

2020 Q. What did you have hold of first—what was the first you got hold of?

A. I had hold of the wooden handle, with the upper part of my hand resting against the metal part.

Q. And when you turned around to point your other hand touched what?

A. The metal on the upper part of the switch.

Q. Of the other switch?

A. Yes, sir.

2021 Q. What burns did you receive from that contact?

A. I got a burn on the back of the right hand that took the hair off and just left the mark—the red mark of the shape of the metal of that switch.

Q. You were thrown, I believe, in this case?

A. Yes, sir; we always speak of it as thrown, but then—

Q. We have a fair idea of what you mean by that expression. I think you described it as contractions of the muscles?

2022 A. I pitched forward. That is all I know. I hadn't time to study it out.

Q. And this is the case by which your being thrown forward turned the switch that you first had hold of?

A. Yes, sir.

Q. How long is the arc of the circle in which that switch turned?

A. They pull straight forward?

Q. Straight forward?

2023 A. Yes, they don't turn sideways; they pull straight forward.

Q. What is the length of the pull that you can give to it?

A. You can give about half way past the quarter turn—that is, 45 degrees opens them straight out.

Q. I mean in inches?

A. Oh, in inches in that switch? You mean how I left it or how it can be done.

Q. I mean how it can be done and how you left it?

A. You can swing it open, I suppose, until the opening, I should say, was three and one-half inches. 2024

Q. How much did you pull it open when you fell forward?

A. I pulled it open about three-quarters of an inch. I can make that clear, I think, by explaining that as the switch came open my hand would naturally slip off of it just as it came to the right angle. Even if I hadn't grasped it the mere fact that I had hold of it—my hand would free itself as it went forward. 2025

Q. How long is the handle of the switch?

A. Well, about four and one-half inches, I should judge. It just cleared my hand comfortably.

Q. That handle is perpendicular or horizontal?

A. It is perpendicular when the switch is closed, and then I pulled it out to an angle of about 45 degrees.

Q. Then this contact was made, was it not, through the side of the hand, or the side of the palm just opposite the thumb in the one case, and the back of the hand in the other case? 2026

A. The side of the palm that is next to the thumb.

Q. Next to the thumb?

A. Yes, sir.

Q. That is the way it would come?

A. Yes, sir.

Q. Now, Mr. Smith, I do not know as I understood your testimony on this point. I would like to get it a little more clear. You testified that the fact that this machine at Pittsburgh had a current capacity of 125 amperes— 2027

A. (Interrupting.) Yes, sir.

Q. Did its capacity of 125 amperes increase in any way the intensity of the shock that you received by that contact?

A. I can't say whether it did or not. I have no knowledge of that. I haven't so testified, I believe.

Q. I don't say that you have; I want to know what your testimony would be as to that?

2028 A. I can't say whether it would or not, sir, beyond the fact that the total energy which that machine is capable of developing is there, and if you get in the way of that energy you will get that proportion of it. That is to say, if you care for an explanation—

Q. Make a full explanation?

A. I would say that the No. 1 machine would not be capable of burning off what is known as a No. 6 wire. This 125-ampere machine I have seen bite that off in one instance. 2029

By Mr. Cockran:

Q. The No. 1 machine is the one that is designed for the benefit of the State in criminal execution?

A. Yes, sir.

Q. I mean described—provided for?

A. Yes.

2030 By the Referee:

Q. Now, while Mr. Poste is looking at that memorandum of his, it may be just as well to get on the record one or two things. What was your age at the time you received these shocks?

A. I really forget; it was four or five years ago.

Q. How old are you now?

A. I forget. I was born in 1856. I am not 33 yet; I am in my 33d year.

2031 Q. How much do you weigh?

A. 210 pounds.

Q. And you stand pretty near six feet, don't you?

A. Six feet two, sir.

Q. Is your skin thick or thin?

A. I don't know. A man should be pretty thick-skinned in the electric-light business.

Q. Couldn't be thin-skinned?

A. Couldn't be and live.

Q. Do you perspire freely?

A. Yes, sir, very freely. 2032

Q. Did you at that time?

A. Yes, sir. That is the effect it always has on me; it brings me out in a tremendous perspiration.

Q. Before you received the shock was your skin moist or dry?

A. In the first case my skin was moist.

Q. That is the 1,000 volts that you took?

A. Yes, sir.

Q. How was it when you took the 1,500 volts? 2033

A. In the first case of the 1,500 volts, at Sellers's, my skin was moist, but I think my hands were probably dry. It was in the engine room of the machine shop, and it was very warm. I think my hands must have been dry; I was working on a dusty floor, and I think my hands may have been dry, probably. If they were, it was the only part of me that was dry.

By Mr. Cockran:

Q. Did you get any shocks when they were not dry? 2034

A. I get them at all seasons of the year, and it depends on the season. The shock that I got in Pittsburgh, on the big machine, my hands were dry and my whole person was dry because it was in the winter time, but I was in a profuse perspiration when I picked myself up.

By the Referee: 2035

Q. Shortly afterward?

A. Yes.

Mr. Poste:

Q. We come now to the case of the lineman that you have described, and the shock that he received. That was a 1,000-volt alternating machine, wasn't it?

A. Yes, sir.

2036 Q. Where was it?

A. That was in Station B of the Allegheny County Light Company, in the city of Allegheny.

Q. You saw this?

A. Yes, sir, I was working with him.

Q. What was he doing?

A. He was coupling up the switch-board. That shock was from a 1,500-light machine; what we call a No. 2 machine—1,350 I think we rated them at.

2037 Q. A 1,000 volts electro-motive force?

A. A 1,000 volts electro-motive force; yes, sir.

Q. You say he was coupling up a switch-board?

A. Yes, sir.

Q. Now, tell us just what you mean?

A. We had the dynamo—the dynamo was running on the switch-board—we had these same four lines of copper bars, that is, the same copper bars—two lines of two each—and we were putting in another circuit—we had taken a large contract there, and we had run main
2038 wires down the street to this building, that we were going to light, and we were making preparations to turn on the current to that building. At that time we were running the machines night and day. We never had the lights out at all. I asked this man if he was afraid to go and couple them up. He said, "No I am not afraid. I have been working around arc lights long enough; I guess I can attend to it." I said, "If you feel nervous about it, I don't want you to do it."
2039 He said, "Oh, no, I am not afraid." I said, "All right, let's go ahead." There were two switches to couple in to throw the current from either set of bars to the circuit; or, as we would express it, to throw the circuit on either set of bars; and to connect up these switches we use brass clips made in two pieces, held together by screws, and we ran wires from those clips to the different parts of the switches. He was putting on one of these clips at the time he got the shock. I was working at the end of the board and around the back of it, fix-

ing some of the small wires through the board to a 2040
small field-magnet—small converter and volt-metre. He had his hand up behind, and these wires stood out a good deal from the board. They stood out, I suppose, two and one-half or three inches, and there was just room enough for him to get his hand up through the back between them.

Q. What is the shape of those bars?

A. Round bars running horizontally along the boards—half-inch bars. 2041

Q. Go on.

A. The clip that he had in his hand was about three inches and a half long, and I think they are an inch wide. It is the regular standard bar that we use for the purpose. He had his hand up behind the lower bar and was holding the clip against the upper bar, and both of these being charged, one with the positive pole of the machine and the other with the negative—

Q. He was holding the clip against the upper bar? 2042

A. He was holding the clip against the upper bar and forcing the screws into it with the screw-driver in his left hand.

Q. Was he screwing it in the bar?

A. No; around the bar; the clips go around the bar, and the two pieces are held together by ordinary screws, and he was tightening up these screws, and the first I knew I heard him give a gasp, and I jerked around from behind the board—I was jammed in 2043
behind the board—it was pretty close to the framework there, and I twisted myself around and saw him putting up his other hand—his right hand—and as his hand came against the upper bar—I could not see where his left hand was—I only had his description of it, but I saw his right hand come from the upper bar, and as soon as he touched it I saw the flame fly from the arc, and I went there and grabbed him up. When I got there he had collapsed—had scraped against the

2044 board—and I was afraid his face would go in among the wires, and I pulled him out and caught him as he fell.

Q. I understand you to say that you did not see yourself where his left hand went?

A. I could not see from where I was where his left hand was. I asked him how he could do such a thing as to get his hand there, and he then explained to me that his hand was right up near the upper bar and resting there. I saw him put his hand up on the upper bar. 2045

Q. Was he on a ladder?

A. No, sir; he was standing on his feet. His explanation of the way he came to get the shock was, that he touched both bars, and that held him, so that he put the other hand up. I saw him put the other hand up; I don't know why he did it.

By the Referee:

2046 Q. What kind of a looking man was he?

A. He was a very thin—very, very thin man; a very sickly-looking man.

Q. Was he at that time?

A. Yes, sir. I don't think his general health was bad, but he gave you that impression looking at him—one of those careworn-looking thin men.

By Mr. Cockran:

2047 Q. A cadaverous man?

A. A cadaverous man; yes, sir. He was a very steady man, and didn't drink.

By the Referee:

Q. How much would he weigh?

A. He was pretty tall. I suppose he would weigh in the neighborhood of 160 or 170 pounds.

Q. He was one of those men that it is very difficult to guess the weight of?

A. He was very thin and yet very tall. 2048

Q. Was his skin moist at the time he made this contact?

A. Yes, I should judge it was. When I caught hold of him his clothing was damp, and that would not have occurred in such a short time. It was warm weather too—it was very hot weather.

By Mr. Poste:

Q. Now, give a description of the first shock from a continuous-current machine—the Brush machine. 2049

A. Yes, sir.

Q. Where was that?

A. At William Sellers & Co., Philadelphia.

Q. What kind of business are they in?

A. Machine-tool builders.

Q. Now, give a careful description of that accident in the same way as you did of the other?

A. I was at that time in the employ of the Thomson-Houston Company, and I was putting in this machine at William Sellers & Co. 2050 I had originally put in their Brush machines while I was in their employ. They had bought the machines and put them in themselves, and I had done that work. This machine I was putting in some time afterward, and when I went there, the circuits, of course, had been changed considerably since the time I worked there, and the machines had been changed. When I was there originally, the machines were 16-light. They had been changed. 2051 They changed the armatures—they were what the Brush people called their standard, 30-lighter. The man who had been attending the machine was there; he was their gang-foreman, not an electrician, but just a gang-foreman in the workshop. He had been looking after the dynamos and he asked me—they had set the machine up, and I was to go around and couple it up and start it. I asked him where they were going to couple it in their circuit and he showed me these wires where they were on the walls.

2052 Q. What do you mean by a coupling?

A. A piece of brass with two holes in it and the wires are clipped through these holes and clamped up with screws. I asked him where they were going to put those, where they were going to couple the machine, and he said right there, where these couplings were. I said yes, all right, and he wanted to know what time it would be ready to start, and I told him I thought I would have it ready in time to start up the
2053 lights. I had no idea that that formed part of the general circuit; I supposed it was a new circuit to be supplied from the Thomson-Houston machine. We had not sold them any lamps, we had only sold them the dynamo, so that I was unfamillar with the circuit; but the time got a little late, it got along to be pretty dark and and when I was ready I said, "Well, now, I am all ready to go ahead. Are you people ready?" He said, "Yes, ready any time; shall I go and shut the lights off?" I said, "No, I will put them
2054 in right here?" I didn't understand what he meant; I didn't pay much attention to him. I took a ladder and put it against the wall. These wires were about eight feet up from the ground I should judge, and never suspecting there was any current on the wires I went up the ladder. I had a pair of pliers and a screw-driver, one in each hand, and I took the screw-driver and pulled the wire out and put myself right into the circuit.

2055 Q. What did you take hold of?

A. I took hold of the coupling with one hand and the wire with the other, and just pulled them out.

Q. Did the coupling adhere to the wire?

A. Yes, sir; I only slacked off the one screw. It was one of those couplings that had two holes and two screws. I only slacked off the one screw and pulled the wire out of that hole so that I had hold of the coupling with one hand.

Q. How did you have hold of it?

A. Just grasped it—and, as I say, I felt a tremendous blow all across the shoulders and head and saw a tremendous flash of light, and pitched off the ladder backward, and I fell right down. There were three or four men standing right there to see me couple in the machine, and I pitched down right among them, and one of them got hold of me and picked me up, and I said, "Why, there is current on that wire." He said, "Of course there is; there is 28-lights on it." I said, "What did you let me touch it for." He said, "I didn't know that you were going to touch it." I told him that was where he told me it was to be coupled in, something to that effect, I could not give you the words. I was finding fault with him for letting me touch the wire, and he was explaining that he didn't know that I had any intention of touching it; and then I told him I would try it again, and I started to go up the ladder. 2056 2057

Q. (Interrupting.) Never mind that; I want a description of the accident. Now, how were these wires—part of what circuit were these wires? 2058

A. Part of the Brush circuit which were running in their foundry and car-shops and iron-works on the other side of the street.

Q. Do you know what kind of dynamo they were connected with?

A. Yes, sir; they were connected with a Brush dynamo.

Q. The same kind that you were going to put in? 2059

A. No, sir; a different kind, a different manufacture.

Q. Continuous current?

A. Yes, sir.

Q. What was the voltage?

A. The voltage varies with the number of lamps in the circuit. These men told me they were running their full circuit—28 lamps.

Q. You don't know that that was true?

2060 A. I only know what I was told, that that machine was running to its full capacity. I know that there were 14 lamps on it anyhow.

Q. How many amperes would that require?

A. Nine and six-tenths is the standard of the machine.

Q. I meant to say, how many volts would 28 lamps require?

A. 28 lamps.

2061 Q. Yes.

A. 28 lamps would require—they generally count them as 45 to 50 volts a lamp, but, so far as I know, the actual voltage is from 43½ to 45.

Q. You saw how many lamps there?

A. I know there were 14 lamps on, because I counted them.

Q. 14 burning?

A. Yes, sir; there were 14 lamps at that time in the building that I counted, because after that accident
2062 and after the whole thing was over I coupled our own machine in and went around to see how many lamps were on it.

Q. Had this Brush machine a regulator attached to it?

A. It had not at that time.

Q. It had not?

A. No, sir.

Q. You say your hands were burned?

2063 A. Very slightly; you could hardly call it a burn —they were scorched, not burned.

Q. Do I recollect rightly that you said you fell off the ladder?

A. I fell backward—I would say I was thrown backward off the ladder; it is using the word in the same way that I have used it.

Q. You didn't drag the wires down with you, did you?

A. No, sir; they were fast—they were torn out of my hands by the fall.

Q. Now, we will pass to the Thomson-Houston machine; is that it? 2064

A. I don't know how to pronounce it. He called himself Houston. I believe he calls himself Houston.

Q. Describe that incident with the same particularity as the others, Mr. Smith?

A. It was in the cellar of Gusky's store in Pittsburgh.

By Mr. Cockran: 2065

Q. Just locate that store?

(Not answered.)

By Mr. Poste:

Q. What is the number of the street?

A. I cannot tell you the number of the street, but the man's name is J. M. Gusky; everybody knows him.

By Mr. Cockran: 2066

Q. What kind of business?

A. Dry goods and clothing.

By Mr. Poste:

Q. Go on?

A. And Mr. Ringeld had put the machine in there; he was then agent for the Thomson-Houston Company; I had been in their employ.

Q. The Thomson-Houston machine furnishes a continuous current? 2067

A. Yes, sir: a so-called continuous current. He said he didn't think the regulator was working right and asked me to go down and look at it, and when I got down there I asked him how many lamps he had burning—it was a 25-light machine and he had 30 lamps on it.

Q. He said so?

A. I saw them, I counted them, because I sus-

2068 pected he had more lamps on than the machine should have, so I went around with him and counted the lamps. There were 29 lamps burning. There were 30 on the machine, but only 29 were burning.

By the Referee:

Q. You mean there were 30 on the machine, but only 29 were burning?

A. Yes, I should have made that statement before, 2069 there was one not burning.

By Mr. Poste:

Q. What is the calculated voltage for each lamp?

A. They are supposed to be 45 to 50 volts. I believe the average of them would show from 41½ to 45 volts.

Q. Go on.

A. I went down with him, and thought from the way the machine acted that there must be a loose con-
2070 tact somewhere, and the first place I tried for it—

Q. (Interrupting.) What was the action of the machine?

A. She was working unsteadily. She would spit on the commutator and jump.

Q. Spark?

A. Yes, sir, spark and twitch, as if there was a bad connection somewhere. We cannot explain that. If you run the machine you get to know the workings of
2071 it, and I thought there was a poor connection in the circuit, and the first thing I did was to see if all the connections were right, and in doing that I stooped down, and I had my foot on the negative wire, as I found afterward when I examined the place. I didn't know it at the time. I didn't notice it at the time; it was lying down on the floor in a groove; the floor was full of oil and dirt, and I put my foot on that. Coming in from outside, it was then wet weather, and I suppose my feet were wet, and I stooped down and

took hold of the bare binding post on the positive side of the machine. 2072

Q. What kind of a wire was that negative wire?

A. Underwriter's.

Q. Common insulation?

A. Common insulation.

Q. Go on.

A. And I stooped down and took hold of the binding post of the machine.

Q. What do you mean by the binding post? 2073

A. The terminal, where the wires are attached to it for the main circuit. It is part of the machine. That is where the main wire comes out of the machine. In that way I bridged right across the whole circuit of 29 lamps which were burning. I shunted around the machine. The shock was enough to draw me up. I couldn't let go, and I felt it was going up to my head, and I shouted to him to shut it down, and instead of shutting it down, he was standing by the main circuit switch, and he pulled it open, and that sent the whole 2074 circuit through me. I was thrown backward on my back three or four feet away. I was lying there kind of stupid, and I lay there until he got hold of me, and he said, "Are you killed?" and I said, "No, but I feel like it," and I got up.

Q. What season of the year was that, you say?

A. I can't tell exactly, but as nearly as I recollect it must have been, I think, somewhere in September; I can't say positively. 2075

Q. Are you positive it wasn't winter?

A. Yes, sir.

Q. Did you wear boots or shoes?

A. These ordinary shoes; not low shoes, but ordinary shoes.

Q. Well, was the channel in which this first wire that you describe sunk beneath the floor?

A. No, it was just a groove beneath the planks, where the floor had spread a little, and the wires had

2076 been put in there carelessly and had dragged around there on the floor until finally it dragged into this groove and laid there.

Q. You stood on top of them?

A. Yes, sir.

By the Referee:

Q. Is this the case that you have specified where the prints of the nails of the shoes were left in your foot? 2077

A. Yes, sir; they were not prints, they were little holes burned through my skin right where the nails were, a double line right down my foot.

By Mr. Poste:

Q. What did you testify as to the burning in this case; was the hand burned?

A. No, sir, my hand was not burned at all; my foot was, my right foot.

2078 Q. Did you describe particularly any other accident on direct examination? I think not. I think that these four cases were all the ones that you described particularly?

A. I think these are all the cases that I gave a full explanation of.

Q. In the case in which you were experimenting for a ground, did you find there was a ground on that wire?

2079 A. I was not experimenting for a ground; I was testing the ground detector.

Q. Mr. Cockran suggests that I ask you to explain that term. What is a ground detector?

A. A ground detector is a small piece of apparatus that we use for finding if there are grounds on the current.

By Mr. Cockran:

Q. What do you mean by grounds on the current?

A. If the ground detector is not in proper condition we cannot tell whether the ground is there or not; so in order to tell whether the ground detector was in proper condition I was testing the ground detector itself. 2080

By Mr. Poste:

Q. What kind of wire did you have in your hand?

A. That I was testing the ground detector with?

Q. That you were using?

A. I couldn't say. It was a piece of scrap wire picked up—a piece of insulated wire. Of course I bared the end of it where I was touching the wires with it. I had touched the bars several times with that wire before I touched the bar itself, of course. 2081

Q. Have you been cognizant of any fatal accidents arising from accidental connection with electrical lighting wires?

A. Not personally, sir.

By Mr. Cockran: 2082

Q. You have read of them?

A. I have read of them. I never saw a man who was killed. Men that I have known have been reported to have been killed. I have read the announcement of their death—men that I have known. I was not present, nor did I ever see a man that was killed.

Recess until 1.30 P. M.

2083

New York, July 19, 1889.

After recess.

Alfred L. Loomis, called as a witness on behalf of the Relator, being duly sworn, testified as follows:

Direct examination by Mr. Cockran:

Q. Where do you reside, doctor?

A. 19 West 34th Street.

2084 Q. You have been a practicing physician for some years, doctor?

A. 30 years.

Q. Doctor, are you, from your knowledge of medicine and the construction of the human body, able to tell us whether a current of electricity could be generated by artificial means that would be certain to kill any human being?

A. I could not, sir.

2085 Q. We have had told us here by a gentleman who claims to be an expert, I believe, in things medical as well as things electrical, that a shock with an electric current administered to a human being will cause death, by causing a complete breaking down of the nervous system. Does that convey any sense to you?

A. Nothing at all, sir.

Cross-examination by Mr. Poste:

2086 Q. Then the expression "breaking down of the nervous system" does not mean anything to a physician?

A. It would not to me, sir; I don't know as it would to any physician.

Q. Isn't the expression used in common parlance; didn't you ever hear it used?

A. I have heard laymen use it; yes, sir.

Q. Don't you know what laymen have in mind when they use it? 2087

A. Well, no, I don't.

Q. You don't?

A. Used up, I think they mean—physically used up.

Q. Did you ever examine—dissect—the body of a man who had been killed by an electrical current?

A. Never did.

Q. Have you ever examined the body of an animal that had been killed by an electrical current?

A. I never did.

Q. Are there two Dr. Loomises? 2088

A. There is a father and a son, sir.

Q. Are you the son?

A. I am the father.

Q. Which is the Dr. Loomis?

A. I do not know, sir; I am the oldest, certainly.

Mr. Cockran:

I will say that this is the Dr. Loomis. 2089

Mr. Poste:

I presume you will say so; I presume that it is the Dr. Loomis.

Q. Have you a specialty, doctor?

A. Yes, sir.

Q. What is your specialty?

A. Diseases of the heart and lungs.

Q. Does that specialty require—is your attention devoted to the healing of diseases of the heart and lungs? 2090

A. No, sir; general medicine is my field.

Q. Are the applications of electricity to medical practice matters of attention of yours in any sense?

A. Not at all, sir.

Q. Do you administer electricity in these diseases you have mentioned—those diseases of the heart and lungs?

A. No, sir. 2091

Q. Do you occasionally administer electricity?

A. Yes, sir, as a general practitioner.

Direct examination by Mr. Cockran:

Q. Doctor, is there anybody in the profession who is regarded as an authority on the application of electricity to the human system?

2092 A. I think Dr. Gray has studied the subject more than any one I know of, sir.

Q. Is that Dr. Landon Carter Gray?

A. Yes, sir. Dr. Rockwell is a specialist in that line—perhaps more completely a specialist in the use of electricity than any other gentleman in New York.

Re-cross examination by Mr. Poste:

2093 Q. What are the initials of Dr. Rockwell, do you know?

A. A. D.

Q. Is he the author of a text book on that subject?

A. He is; yes, sir.

Q. Which is recognized as authoritative?

A. I do not understand the question.

Q. Is it recognized as a valuable publication upon the subject?

2094 A. I think so; yes, sir. As an American publication; yes, sir.

By Mr. Cockran:

Q. Do you consider him and Dr. Gray about on a par?

A. I think Dr. Rockwell is more of a practical electrician and Dr. Gray has studied the subject more carefully, perhaps. That is the way I should class them
2095 as I know them.

Q. One has made more extensive research and the other has been more practical?

A. I think that is the difference between the gentlemen.

Benjamin D. Acker, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran: 2096

Q. Mr. Acker, what is your business?

A. Well, at the present time I am employed by the Keystone Light and Power Company in its general construction, placing wires and dynamos.

Q. Where does the Keystone Company hang out? We have had this name mentioned, but I have forgotten exactly.

A. 707 Sansom Street is their station.

Q. Sansom Street, where? 2097

A. Well, it is below Chestnut.

Q. But you are not in Philadelphia now, you are in New York—Philadelphia, you mean?

A. Yes, sir; Philadelphia.

Q. Do you remember, Mr. Acker, ever seeing any human being come in contact with electric wires?

A. Yes, sir.

Q. This Keystone Power Company that you have described is an electrical company, is it not? 2098

A. Yes, sir.

Q. What is its general business, so that we can understand it?

A. Supplying current for electric lighting.

Q. You are one of the gentlemen employed in the general construction of its wires—its plants?

A. Yes, sir; having charge of all the construction work of the station.

Q. Does that mean that where a new customer comes along and wants a circuit you attach it? 2099

A. Attach it.

Q. Or if a man wants to have a dynamo set up in his own place you look after it?

A. Yes, sir, I go and look after it.

Q. And you are in charge of the general electric lighting of the company at that station?

A. Yes, sir.

Q. Have you ever known of a man to get a shock by coming in contact with the wires?

2100 A. Yes, sir.

Q. Mr. Acker, what current does your company use?

A. They use the thousand volts alternating current.

Q. That is the Westinghouse system?

A. Yes, sir; the Westinghouse system.

Q. Did you ever get a shock yourself?

A. Yes, sir; several of them.

Q. Do you view it with the same composure that Mr. Smith did to-day? 2101

Mr. Poste:

That is hardly proper.

Q. Did you ever receive what we might call a full-sized shock?

A. Well, I supposed I did at the time. I got hold of the wires and I got all that I wanted of it.

Q. You got all that there was around?

A. All there was on that wire; yes, sir.

2102 Q. How is that wire supposed to be charged?

A. That wire was supposed to be charged with a thousand-volts alternating current.

Q. What was the most serious effect that ever came to you from any of these?

A. The worst one that I ever got, I got it right in the station.

Q. Tell us about it.

A. Through a little carelessness I accidentally got across both poles. 2103

Q. Both poles of what?

A. Both poles of the machine—you know.

Q. How did you get across it?

A. Well, I had one pole in my hand and I happened to strike on that side over against the other pole of the wire—of the machine—while it did not make me unconscious, it very nearly did—it dazed me for a while.

Q. How did it affect you—was it a pleasant sensation?

A. No, it was not. The best way I can describe is: If you have ever got struck in the pit of the stomach with a baseball bat—that is the way it affected me. 2104

Q. I do not know whether I ever experienced that or not.

A. It knocked all the wind out of me; I merely gasped for breath, but after, when I got to my senses a little more, I felt it through my shoulders, but after a few hours it all passed off.

Q. How did you feel—did you feel as if you had been beaten with a club? 2105

A. It felt as if my arms had been stretched a yard or two longer than they were and shortened back again.

Q. It felt as if your arms had been drawn out of their sockets?

A. It felt as if my muscles had been torn out—a very tired feeling. Every muscle in your body aches for an hour and then the ache passes off. 2106

Q. Now, for those who never handled a base-ball bat so as to get hit with it in the stomach, we do not understand what the sensation is.

A. I had a base-ball bat hit me in the stomach and so I know what the sensation is.

Q. It knocked you out?

A. It knocked all the wind out of me.

Q. Did it have a depressing effect?

A. You are gasping for breath and you cannot get it; that is the way you feel. 2107

Q. You got over it in the course of a couple of hours?

A. Yes, sir; I have had a number of them, but that is the worst I ever had.

Q. When you say "worst," do you mean that was the principle one you received, the greatest amount of volts, or the one that affected you the most?

A. The one that affected me the most.

2108 Q. Have you ever received a greater amount of volts when it did not affect you so?

A. Yes, sir.

Q. Tell us about that.

A. I struck the wires in the same way of the same machine, but it did not affect me in the same way; probably I did not make as good a contact, but I got all the current.

Q. How much current was on the wire?

A. A thousand volts.

2109 Q. Did it burn you?

A. Yes, sir; I got it on that finger at the time (indicating) and it burned a hole right in there (indicating); there was a hole about one-eighth of an inch after I picked off the outside skin. It was one-eighth of an inch deep—it went right through there, so that whenever I used it the blood oozed out of it.

Q. That was your left forefinger.

A. Yes, sir; the left forefinger.

2110 Q. At this time that you got the blow that revived recollections of the base-ball bat in you?

A. Yes, sir.

Q. Did it burn you at all?

A. Yes, sir.

Q. Tell us how it burned you?

A. Well, it burned me about the same as the other did; it burned a round hole right through the skin.

Q. What part of the body?

A. I got it on the side of this finger.

2111 Q. Which finger? Describe it.

A. I think it was the third finger on the right hand—that is the one that came in contact with the wire. I got it on this side of the left hand.

Q. That is, on the side of your left hand?

A. On the side of my left hand; yes, sir.

Q. And how much were you burned there?

A. I was burned there—it just raised a blister there—an oblong blister about an inch long and half an inch wide.

Q. Did you ever see an accident happen to anybody else? 2112

A. Yes, sir.

Q. Do you remember the accident to a man named Wright?

A. Yes, sir.

Q. Will you describe that—how it occurred and where it was?

A. Well, I sent Mr. Wright down into the basement—

Q. Who was Mr. Wright? 2113

A. He was a man employed by the Keystone Light and Power Company; he was working under my supervision at the time. I sent him down there to put up a converter and told him to be very careful of these wires, as they were high-tension wires. I changed them over from a 200-volt current to the alternating system of a 1,000 volts the day before. He had worked down there previous to that, and he had taken a flexible cord with a socket attached to it, and just 2114 bared the wires and twisted the ends around temporarily to have light down there. After I had changed it over to 1,000 volts he had forgotten about it—at least he knew of it, but had forgotten it—and he went down there and caught hold of this socket and he fell forward on his face. The long flexible cord was about 15 to 40 feet long, and he had the current on him all the time until I went myself and took it off.

Q. How long was that? 2115

A. It must have been fully seven or eight minutes, because it was about two squares away, and the man that went down into the cellar with him—the first time he ever went down with him—he was a green man—he went into the cellar and had to crawl through a hole in the wall—he went through that hole in the wall and it was perfectly dark, and Mr. Wright did not know where this wire was and he walked over;

2116 this man spoke to him and he knew there was something the matter; he spoke to him and he could not get any answer; he felt around there for a couple of minutes and then he undertook to get out and go for help. In the excitement he had to grope around the wall and through the floor and went up the stairs and down to the station, and he told one of the men there that there was something the matter with Mr. Wright, and this man in the station knew that I was 2117 going down to the Keystone office and he started down after me and he halloed after me and when he got to me he told me that Mr. Wright was knocked out; and I said, "Where is he?" and he said, "At Caster's somewhere," I knew what the trouble was—at least I surmised I did—I started for there. There were about a dozen men in the cellar when I got there, and I took him off the wire.

Q. How did you get him off?

A. As I laid my hand upon his head I knew there 2118 was something there connecting him—I stooped down and put my hand on his head and got a fearful shock right off his head, and I knew that the current was on to him and at the same time—the same instant—my arm came in contact with this flexible cord reaching from the ceiling overhead, and I just gave a sudden jump back and jerked that wire back with my sleeve—jerked it back and drew it loose from the ceiling. We turned him over and took him out and laid him on 2119 the table; he was unconscious.

Q. Well, go on?

A. He was unconscious, and purple in the face.

Q. Was he burned?

A. Oh, he was burned; we didn't know he was burned until afterward. Of course, after the excitement got down we examined his hand and found that he was burned very badly in his right hand.

Q. He was purple in the face. What was his condition—did you discover any breathing?

A. Couldn't hardly find any breathing about him, 2120
until after we took him out and laid him on the table.

Q. Did you believe him to be dead then?

A. They all thought so; I thought so myself.

Q. When he was taken out everybody supposed he was dead?

A. Yes; when he was taken out we all supposed he was dead.

Q. And you laid him out, believing he was dead?

A. Yes; we laid him on the table and commenced 2121
bathing his hands with water, and working him up and down, and some of them were examining for his heart, to find if it would beat, and after that he commenced to breathe slightly.

Q. How long were you working at him before he commenced to breathe?

A. Two or three minutes, as near as I could judge, from the time we picked him up until we put him on the table; then he commenced to breathe heavier, and
had a gurgling sensation in his throat, and, I suppose, 2122
ten or fifteen minutes afterward he sat up.

Q. Was he able to move?

A. Oh, yes; after he commenced to come to, in about fifteen minutes after that he moved and sat up himself, but he was dazed—didn't know what the trouble was with him.

Q. Now, will you describe the burns he had on his hands?

A. The one was a big blister right there in the 2123
palm of his hand (indicating), a big blister, I suppose that it was an inch and a half in diameter—a kind of an oblong blister. He didn't think he was burned much; he was pretty sore. He felt a little sore at first, but that afternoon he came down to the office. Some of the officers of the company requested me to take him up and see the doctor about his hand, and so I went to him and told him I would like him to go with me up to Dr. Williams, and he went up there and

2124 saw Dr. Williams, and Dr. Williams gave him some stuff to put on his hands and told him to poultice it. He didn't know his hand was burned as bad as it was until two or three days afterward.

Q. Why?

A. On account of the calloused flesh here which was over it, and the burn was inside. After about three days Dr. Williams got that off, and found the burn was way up in the muscles of his hand.

2125 Q. Was there any other burns on him except the burn on his hand?

A. Oh, yes; I think he had a slight burn or two on the other hand, but it didn't amount to much; he didn't pay any attention to that.

Q. What has become of Mr. Wright?

A. Mr. Wright, he left here last winter—early last spring. He went out to Denver, Colorado, for the North American Electric-Car Company.

Q. But he was around here until then?

2126 A. Oh, yes; he was here.

Q. Outside of that burn, did he ever have any other effects from the shock?

A. I often asked him about it, and he said he did not feel any bad effects of it. The next day afterward he said he was all right and came down to go to work.

Q. Did he groan any while you were working with him?

A. Oh, no.

2127 Q. Did he show any signs of pain when he revived?

A. No, not a particle.

Q. He didn't even feel as badly as you did?

A. No, he didn't even feel as badly as I did.

Q. Outside of the burn there was nothing?

A. Outside of the burn he didn't mind it at all. He was dazed. I took him by the arm and walked him down to the station, and in going down the street I had hold of him; I had hold of him by the arm and he wanted me to let loose of him. He was coming to his senses and thought he had been on a spree. He didn't know that he had had a shock of electricity. 2128

Mr. Poste:

No, no; he cannot tell what he thought.

Mr. Cockran:

The man said that.

Q. Did the man say that? 2129
A. He told me so after he was down to the station.
Q. Now, can you give us any other instances in which you saw men take this?

The Referee:

Hadn't you better find out the voltage?

Mr. Cockran:

Yes. 2130

Q. What was the voltage of this machine?
A. 1,000 volts.
Q. Did he get the full force of it?
A. He got the full force of it.
Q. Why do you say that?
A. We supposed he got the full force of it. He got on one bare wire, direct, and it leaked through him to the ground. The other side was grounded—it is grounded yet. 2131

By the Referee:

Q. Were either of these wires hot?
A. Hot?
Q. Yes?
A. No, sir.
Q. The wires themselves?
A. No, they are not hot; but they feel hot, though, when you get hold of them.

2132 **By Mr. Cockran:**

Q. What burns, then?

A. The poor contact, I suppose. A poor contact will produce heat in a current of electricity.

Q. What was the condition of the ground down there where this man lay?

A. The ground there was bare ground—damp cellar, dark. There were no windows or anything in it; it is underground.

2133 Q. Now, you said something about the other end of the circuit having been grounded. What do you mean by that?

A. The other pole—the opposite pole.

Q. Grounded?

A. It was grounded.

Q. Then how did he connect with that so as to make a complete circuit?

A. This way: We suppose he made a complete circuit by the opposite pole being grounded. 2134

Q. And he touching the ground?

A. Yes, sir; and he touching the ground.

Q. It connected to the ground?

A. A current passed through him, and back on the other pole, which was grounded on the ground?

Q. Have you ever known any other man that took the shock?

A. Slight shocks—at least they considered it slight—in fact they get shocks every day. One man connected himself in a circuit and it knocked him off a 2135 ten-foot step-ladder, burned his fingers quite bad, that is all.

Q. What voltage did he receive?

A. He received 1,000 volts.

Q. You mean on a circuit of 1,000 volts?

A. He was standing on a step-ladder and went to connect the wire, one wire was connected and he went to connect the other, and in doing so he got hold of one wire with this hand and he got hold of the other

wire to connect, and the current went through him; 2136
he connected himself in the circuit.

Q. What happened to him?

A. It knocked him off the step-ladder and burned his fingers a little, that is all.

Q. How long did he remain under the influence?

A. Oh, it just merely stunned him for a few minutes. When he fell he struck his hand on a nail. That hurt him more than the electric shock.

Q. As the brick did the dog in the testimony given 2137
last night?

A. Yes, sir.

Cross-examination by Mr. Poste:

Q. In regard to this third man that you were talking about, did you see that yourself?

A. What is that?

Q. You told us about this man, Mr. Wright. Did 2138
you see the catastrophe which happened to the last man yourself?

Mr. Cockran:

Q. The man who fell off the ladder?

A. I didn't see Mr. Wright get hold of this.

Q. No?

A. But I took him off of it. This man that I just
spoke of that fell off the ladder, I saw him, because I 2139
was standing on the ground and telling him how to do it.

Q. Just tell us a little more definitely just how it was done?

A. He was connecting a circuit connecting one wire on to another one, on to another wire.

Q. Where was this?

A. Right in the rear of 707 Sansom Street, Philadelphia.

2140 Q. Outdoors?

A. Outdoors, in an area way, it was. He stood up on a ladder. There were two wires went up the side of the building, there were two wires came out of the building, and we were connecting them onto these two wires that went up. One wire you can connect on all right, but when you connect that on and get the other on then the current is passing right through, and that is the wire you have got to be careful about connecting on. 2141 I was trying to tell him how to connect it on when he happened to let it go, so that he got one wire in this hand and the other on the other wire where he was going to connect it: he had the circuit right through him.

Q. What happened to him?

A. It burned his fingers and knocked him off the step-ladder about ten feet.

Q. What time of the day was it?

A. Three o'clock, as near as I could judge; some-2142 where about the middle of the afternoon.

Q. What was the proper way for him to make that connection?

A. Everybody has their own way in doing such work as that.

Q. What is your way?

A. My way—I would probably have laid the wire up against that and clamped it tight, not let it loose, until I got it twisted around. There are several ways of doing it. 2143 I could do it easier than I can explain it. Lay the wire on there and don't let it get loose again until you have it twisted around there. If you let it get loose, and you have it in this hand, and you have it on this side, the current passes through your body to this other wire.

Q. How high up was he working?

A. Oh, it was about ten feet high. He stood on a seven or eight foot step-ladder. I suppose he stood up about four or five feet from the ground.

Q. When he fell to the ground did he have the wire in his hand? 2144

A. Oh, no, he broke loose. The wires were fastened to the building tight, and as he fell of course he broke loose from it.

Q. All the wires were fastened to the building?

A. The wires were all fast. He was only just connecting the ends. They were all fastened to porcelain glass insulators. Of course, when he fell, being so high, he broke loose, cleared himself. 2145

Q. This was a current from a Westinghouse dynamo?

A. A Westinghouse dynamo.

Q. Tell me a little more about the accident to Wright. He was alone when this happened to him?

A. No, he had a man with him.

Q. You weren't with him?

A. No, I wasn't with him when he went into the cellar.

Q. Tell me what you saw when you came there and found him? 2146

A. When I first went down in the cellar I knew just about where he was fast, because I knew what he had gone to do. I went right over, and he lay in this position, face downward. The people in there—there were four or five men down there from upstairs, and these people were down there, and they were lighting matches, trying to get a light, and just from the glimmer of the light I saw his outline—form—I went over 2147 and reached down: I laid my hand on the top of his head, and as I did so I got a shock. I knew that the current was fast to him still. At the same instant I came in contact with this flexible cord.

Q. What do you mean by "flexible cord?"

A. It is a fine copper wire—a number of them—all covered with a rubber insulation, and covered over with a silk, or any covering, afterward, to insulate them, but it is made out of fine wire, so it is flexible, 2148 the same as a rope or cord will bend. You can carry it any distance, you know, the same as a portable lamp.

Q. This flexible cord was attached to what?

A. One end of it was attached to the wires up on the ceiling.

Q. What wires were those?

A. Those were the mains. Those were the mains that were supplying the building across the street.

2149 Q. And this flexible cord was attached to them?

A. Was attached to them on one end; yes, sir.

Q. For what purpose are they attached?

A. When they were attached there they were attached to give a light; he had a key-socket on one end—and attached these wires temporarily to the wires overhead so as to get a light on this key-socket.

Q. What do you mean by "key-socket?"

A. A key-socket that holds an electric lamp—an incandescent globe.

2150 Q. And it was intended to attach an incandescent light to this flexible cord?

A. Yes, sir, that is what he used it for; he used it when there were 100 volts on the circuit.

Q. He took hold of this flexible cord?

A. He took hold of the key-socket—the socket on the end of this flexible cord.

Q. And that is the method by which the electricity was communicated to him?

2151 A. Communicated to him right to his hand; he might just as well have taken hold of the bare wires, because the bare wire is attached to the brass socket—the bare wire is attached to the key-socket.

Q. And he still had hold of that when you found him?

A. He still had hold of that when I found him; yes, sir.

Q. Now, tell me more about this accident to yourself. What do you mean by the pole of the machine?

A. Well, in speaking of electrical currents there is 2152
a negative and positive pole. There are two wires
running from an electric machine; one is supposed to
be a positive wire and the other is the negative; the
current is going on one wire and returning on the
other.

Q. How are those wires attached to the machine, precisely; describe them.

A. Well, there is a bar that runs out; there is a
commutator with a brush, leading from that commu- 2153
tator to a brass bar that runs out here, fastened to the
journals or the bearings, and in that there is a socket
with a couple of set screws; you just poke your wires
in there and turn up these set screws, and that wire
leads right over to your switch-board; there was one
on each side.

Q. Now, where did you stand relatively to those two wires?

A. I was over in the corner, near the switches—
a number of switches in the corner where these wires 2154
led to.

Q. You weren't near there at that time?

A. I was within about four feet of it.

Q. You said that you had one pole in your hand; you didn't have hold of the dynamo?

A. Oh, no; I had the wire leading from the
dynamo There were two rows of switches, an upper
row and a lower row. One wire led to the lower row,
and one wire from the other side of the machine led 2155
to the upper row, and it was pretty cramped—close
together; you didn't have any more room than you
wanted to work in there with the current on. I had
hold of one, and accidentally touched the current.

Q. What were you doing?

A. I was connecting up a circuit there. These wires run from the machine to the switches, and then a circuit from these switches run out.

Q. Had you these wires you had in your hand already connected with the circuit?

2156 A. No, I was just getting ready to connect.

Q. Was the other wire connected?

A. The wires from the machine were connected with the switches, but I hadn't them connected out on the street yet: I was just getting ready to do that. I was working there. I think I had one pole connected, if I am not mistaken, but I got across the two poles—what we call 1,000 volts, if you get there.

2157 By the Referee:

Q. These wires that you handled in that way have got some insulatory covering on them?

A. Yes sir; all of them, unless it is the switchboard. That is the only thing that was bare.

Q. These wires that this man Wright struck have insulatory coverings on them?

A. It was all insulated.

Q. Wouldn't that have the effect to diminish the current that he received? 2158

A. I do not know that it does; no.

Q. What good is the insulation then?

A. Oh, it has an effect—I didn't understand you. Of course you can take hold of the wires if they are insulated and not get the shock.

Q. Take hold of two wires of opposite polarity?

A. Yes.

Q. Was there some insulatory covering on these wires?

2159 A. Oh, yes.

By Mr. Poste:

Q. To what did that wire lead which you had in your hand?

A. Which wire?

Q. The wire that you had in your hand at the time you received the shock.

The Referee: 2160

All of these wires that you have mentioned in your testimony as being handled by yourself or these other men, were insulated, were they?

The Witness:

A. They were all insulated wires; yes, sir.

Q. Now, at the time you received the shock, yourself, you say that you had one wire in your hand? 2161

A. No, I say I was connecting up the switch.

Q. Yes, exactly?

A. The wire was already attached to the switch—connected there.

Q. The wire was already attached to the switch?

A. The wire was already attached to the switch; I was simply connecting it.

Q. From the switch where did that wire lead?

A. Out in under the ground to the cables.

Q. Directly to the cables? 2162

A. Yes, the wires I was on were the cables that went out from the station under the ground—went out on the circuit.

Q. Where did the wires lead that you touched?

A. They led out under the ground—they both led out under the ground.

Q. Then those wires—they connected with the switch and the cables outside?

A. Connected with the switch. The switch broke the circuit. 2163

Q. How about the insulation on this socket—this brass socket that you speak of? Was there any insulation there?

A. Well, it wasn't exactly insulation. The inside of the socket—the part that touched his hand—was connected direct with the wire. The Westinghouse socket projects down, I should say, a quarter of an inch. The old socket connected a quarter of an inch

2164 below the shell. That is the form that clutches the lamp—as you shove the lamp in that clutches it. That is one of the contacts—one pole. That projected below the shell of the socket—that is the part that done the burning.

Q. You haven't answered my question. Wasn't there some provision for insulation on that brass socket?

A. No—I don't know as I understand you now.

2165 Q. Was the brass shell or the brass socket insulated in any way. That is what I want you to answer; you didn't quite answer it. You can answer it yes or no?

A. One pole of it was insulated so that you could not get at it, but the pole he got at wasn't insulated. It was insulated from the shell, but it projected from the shell, so that he got in contact with it.

Q. The outside case is supposed to be insulated from it?

2166 A. It was, but it projected so far beyond it.

Q. You mean to say that some inside attachment of the shell projected beyond the outside?

A. Yes, that was it. The inside that clutched the lamp which was one pole—one contact with the lamp—projected about a quarter of an inch, about as near as I can judge—a quarter of an inch, but it might be a little more beyond the shell that was insulated.

Q. The shell—the outside is perfectly insulated?

2167 A. Well, it is supposed to be.

Q. The Westinghouse people claim that it is perfectly insulated?

A. Yes, sir; it is as far as I know, unless it is a damaged shell or something or other of that kind.

Q. Will you kindly make a drawing of that brass socket?

A. The brass socket.

Q. Yes; that is a longitudinal section of it.

A. As near as I can. You mean the whole thing—the whole socket?

Q. Yes. 2168

(Witness makes diagram and hands it to counsel).

The Witness:

That is a rough sketch of the whole socket.

Q. Just mark with letters there the various points —the various points that you claim he touched?

A. This end here (indicating).

Q. Mark it with letters—mark letters on it. 2169

A. That is all one piece. It is a circle, only there are slots cut in it.

Q. What part did he touch?

A. He took hold of the whole socket with his hand, and the outside of his hand came in contact with the portion which projected, marked "2" on the diagram.

Q. Will you swear that any portion of that socket projected beyond the shell?

A. What is that? 2170

Q. Will you swear that any portion of that socket projected beyond the shell?

A. It projected slightly beyond the shell. That is what I said: that is the old-style socket.

Q. How was the lamp fastened to that shell?

A. That shell holds it—clutches it. The lamp was just shoved in and it clasped itself around there.

By the Referee:

Q. When you say lamp you mean this little loop that becomes incandescent, or do you mean the glass globe and all? 2171

A. The glass globe and all.

By Mr. Poste:

Q. What protection was there for anyone using those incandescent lamps from receiving the same kind of shock that he did if they happened to touch that little projection of the shell?

2172 A. I do not know; they don't often touch them.

Q. Then the shell was used in such a condition at that time that anyone touching that point would be liable to receive the shock?

A. Yes, he would receive a shock off of that shell if he got hold of it. That insulating ring that I show on the outside of it there, that is supposed to be an insulator.

Q. How many volts are used, or were used then, to feed one incandescent lamp? 2173

A. How many volts?

Q. Can you tell?

A. No, I do not know.

Q. What was the method at that time of attachment, or of distribution of the electric current to lights in houses, employed by this company—what was the system?

A. What system is used?

Q. Yes, what was the system?

2174

Referee:

Q. What was it then?

A. We were using the alternating.

Q. Yes, I know, but did you carry the full force of the dynamos—every dynamo in the house?

A. No, it was reduced by converters to 50 volts.

Q. What was the method—what was the system of the converter?

2175 A. What was the system of the converter?

Q. Yes, describe the converter.

A. All I can tell is that it is an iron case—the wirings are all inside.

Q. You don't know anything about it?

A. Nothing about it.

Q. Where were those converters kept—where are they placed in a house?

A. In the cellars, generally, or anywhere it is most convenient for them.

Q. Was there a converter interposed anywhere between the main current and this flexible cord that you have spoken of? 2176

A. No, sir.

Q. If the full force of the current—the electromotive power of the dynamo were given to one incandescent light, what would be the result?

A. If the full force was given?

Q. Yes.

A. I do not know what would be the result. It would be liable to smash the lamps. Do you refer to the 1,000 volts? 2177

Q. Yes. What became of the lamp that was attached to this flexible cord?

A. It was broken, I believe.

Q. Had it been lighted, or had it been used?

A. Mr. Wright had used it himself down there.

Q. Well, then, as I understand from your testimony, it would be entirely impracticable to carry on incandescent electric lighting with the alternating system, unless the forces were reduced by the use of converters for the various houses. 2178

A. Well, I don't know anything about that—that is the way we generally used it—we used a converter in the circuit with it.

Q. You do not know anything about it scientifically?

A. No, I do not know anything about what they can do, or anything of that kind.

Q. You are employed by the Keystone Company? 2179

A. Yes, sir.

Q. Does that company contract, or is it in any sense related to the Westinghouse Company?

A. No, sir, as far as I know. From what I have always understood they are a local company—Philadelphia.

Q. Do they operate other dynamos than those of the Westinghouse Company?

A. No, sir; it is the Westinghouse system.

2180 Q. Are they not agents of the Westinghouse system?

A. The Keystone Light and Power Company?

Q. Yes.

A. No, sir; there is another firm that is agent for them.

Q. Are you a practical electrician yourself?

A. I do not claim to be an electrician; I am more of a practical man.

2181 Q. Machinist, or setter-up of machines.

A. I set up the machinery and do the wiring, and put in the plant, connect it, start in and run it, if it is necessary. I do the constructing part of it.

Re-direct examination by Mr. Cockran:

Q. Mr. Acker, I show you an affidavit made by William L. Wright. Does that refresh your memory, after you have read it, about the circumstances?

2182 A. What is that?

Q. Does that refresh your memory, after you have read it through?

By Mr. Poste:

I do not think that is quite right.

By Mr. Cockran:

I have a right to refresh his memory with anything.

2183 By Mr. Poste:

I do not think that is the rule.

By Mr. Cockran:

If you will examine it, you will find that I am right. I will say, "What purports to be an affidavit."

(Continuing.) Mr. Acker, does the reading of that paper which I have shown you, refresh your recollec-

tion in any way, so that you have an independent 2184
memory of the features of that accident to Mr. Wright?

Mr. Poste:

I desire to have an objection noted that the paper which is shown to the witness is merely a newspaper —a printed newspaper—and not a proper method for the refreshment of recollection.

Referee:

2185 What do you say? Do you now recollect it any better than you did before?

Mr. Cockran:

My question is not, does this give you information that you did not have before; but does it refresh your memory? Give your recollection of the circumstances.

The Witness:

2186 I do not know but what it does in, may be, some little details, but from what I see there, as near as I notice it, he got the shock pretty near as I said.

Q. That was not my question. My question was not what he said or anything of that kind—that you have no right to testify to. My question was, after having read that paper, whatever it may be, whether your recollection is refreshed so that you can give us
any additional information on the subject, that is from 2187
your own memory.

A. No, I do not know as I can; I guess I said about all.

Q. Now, I want to come back to this question of insulation. When you took this shock yourself right at the machine, was there any insulating material there at all?

A. Not on what I got on to—it was the bare copper that I got against.

2188 Q. There was nothing of an insulating character there at all?

A. If there had been anything of an insulating character there at all I would not have got it.

Q. Where there is an insulating substance, its effect is to throw off the shock?

A. Yes, sir.

Q. And the fact that a man gets a shock shows the fact that there was no insulation there?

2189 A. Yes, sir; it is not good or else it is poor insulation, or something of that kind.

Q. You have testified, have you not, to several shocks?

A. Yes, sir.

Q. Were all of these shocks that you received from contact with wires that were not insulated?

A. Contact with wires that were not insulated.

Q. Bare wires?

A. Bare wires, practically.

2190 Q. By insulation, I presume you mean a kind of covering on the wire?

A. Covering on the wire; yes, sir.

Q. Now, in the case of Mr. Wright, was there any insulation on the wire that he received—the part of it that he received?

A. There was insulation on the wire, except the socket that he got hold of.

Q. Was there any insulation on that?

2191 A. No, sir; there was not any insulation on that.

Q. Was there enough of that space to give him the full voltage that was running through?

A. There was—that is why he got it.

Q. That was in one hand?

A. Yes, sir.

Q. Now, in the other, I understand he got a shock through the flexible cord?

A. No, the socket was on the end of this flexible cord.

Q. What did the socket connect with? 2192

A. With the end of the flexible cord—the wire.

Q. What did the flexible cord connect with?

A. Connected with the converter on the ceiling.

Q. Was this a converter?

A. No, it was a flexible cord connected with the socket.

Q. If he took that cord in his hand, did he receive the full voltage of the wire?

A. I could not tell. I suppose that he got the whole 2193
of it, the full benefit.

Q. Why do you suppose that?

A. That was the supposition: he got the thousand volts that was passing right over that wire.

Q. What is this converter?

A. There was no converter there—it was just the mains that came from the dynamo direct.

Q. Now, there was some testimony here about converters which was taken while I was outside; I just came in and I heard it—will you state what you mean 2194
by these converters?

A. These converters are an apparatus that they use in connection with the alternating system.

Q. They use it to bring a certain modified power into the house?

A. Yes, sir.

Q. That is to say, if the voltage running through the wire outside in the street is 1,000 volts, now, if you want to reduce the power, you would use a converter? 2195

A. Yes, sir.

Q. So that what came into this room?

A. Would be 50 volts.

Q. That is what you mean?

A. Yes, sir.

Q. Was there any converter of this kind where this man received this shock?

A. No, sir.

Q. This man Wright?

2196 A. No, sir.

Q. What was this flexible cord that was connected with this wire?

A. It had formerly been used for a 100-volt circuit.

Q. It was a wire?

A. It was a wire covered with a silk cord, a silk thread.

Q. Was any part of it exposed?

2197 A. Yes, sir; the socket was exposed.

Q. Will you describe what you mean by socket?

A. Yes, sir.

Q. Is that one of them here (indicating)?

A. I could not tell.

Q. Take one of them and show it to the Referee. That rope or cord was used for a 100-volt machine?

A. Yes, sir.

Q. Could it carry 1,000 volts?

A. Yes, sir.

2198 Q. In the absence of the converter, did it, as a matter of fact, receive the 1,000 volts?

A. Yes, sir.

Q. It was in full sympathy with the whole current?

A. Yes, sir.

Q. Receiving the whole of it?

A. Receiving the whole of it.

Q. If there had been a converter there it would have modified it so that he would have got only 50 volts? 2199

A. Yes, sir.

Q. But there was no converter there?

A. No, sir.

Re-cross examination by Mr. Poste:

Q. How was this flexible cord attached to the main?

A. Just twisted around, just wrapped around it.

Q. Now, bearing in mind the fact that there was, 2200
that there had been, at the end of that flexible cord one incandescent light, and that it does not require the power, the full power of that current to light one incandescent light, to make it break or burst: when you think of those facts, are you ready to swear that the full force of that current passed through that flexible cord?

A. The whole force of the 1,000 volts?

Q. Yes. 2201

A. Why, yes.

Q. You do swear?

A. Yes, he had the full 1,000 volts on that, as far as I know in regard to electricity.

Q. As far as you know?

A. Yes, sir.

Q. You do not know anything about electricity?

A. I do not profess to know a great deal, but I know—you see, that wire was attached to one wire; it
did not return and attach to the other, it is only just 2202
the one wire connected. When he got hold of that he connected himself to the earth with it.

Q. It was not in use in fact?

A. No, sir.

Q. And it was not set up to light the lamp at all?

A. No, sir; it wasn't set up for that purpose.

Q. So that it simply made a leakage for the whole current?

A. Yes, sir. 2203

Q. Now, if there was a lamp at the end of it, would it have got the full current?

A. Yes, sir; but it has to have an outlet, the current might run in there, but you have to have another to carry it back.

Q. But, as it remained there, it was carrying no current?

A. Not at all; he got hold of it and then it leaked through him to the ground.

2204 Q. Now, Mr. Poste put a question which seemed to contain an assumption that if a thousand volts passed through that wire it would burn it up?

A. No, I do not think it would; I know it would not, because I have had a thousand volts on it many a time on a flexible cord.

Q. Of that character?

A. Yes, sir; of that character.

Q. You do not claim to be an expert in pathology?

2205 A. No, sir.

Q. Nor an expert in anatomy?

A. No, sir.

Q. And you did not begin life selling an electrical pen?

A. No, sir.

Q. And you do not claim even to know the distinctions between the technical terms of electricity?

A. No, sir.

Q. You do not have to read books over night to 2206 understand them?

A. No, sir.

FRANKLIN N. POPE recalled.

Direct examination by Mr. Cockran:

Q. In your testimony here as to the number of 2207 revolutions that was made by the wheel of this dynamo, do you desire to make any corrections to that?

A. In stating the number of revolutions I inadvertently confounded the machine I was talking about with another one. The 650-light Westinghouse dynamo when producing 1,050, which was what I was testifying about, makes 1,650 revolutions a minute, instead of 800 or 900, as I think I said.

FRANK H. MACKIN, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows: 2208

Direct examination by Mr. Cockran:

Q. Mr. Mackin, what is your business?

A. Incandescent wireman.

Q. Will you explain to us what you mean by incandescent wireman?

A. I put in lights in stores and so on. 2209

Q. You mean you work on them?

A. Yes, sir.

By the Referee:

Q. Electric lights?

A. Yes, sir.

By Mr. Cockran:

Q. You are not a lineman? 2210

A. No sir: not lineman, inside lineman.

Q. That is, you work with the lamps inside, not on the street?

A. Yes, sir.

Q. Mr. Mackin, where do you reside?

A. 176 East 114th street.

Q. For what company are you working?

A. Manhattan.

Q. Have you recently had any experience with the electric-light wires? 2211

A. Yes, sir; I have.

Q. Are the evidences of it on your two hands now?

A. Yes, sir.

Q. Those are not boxing gloves you are carrying?

A. No, sir: they are bandages.

Q. Now, will you tell us what your experience was?

A. I was working on the switch-board to connect—working with a foreman and another fellow-workman, 2212 and the foreman was behind, and in connecting one switch to the other pushed the wire through and told me to set it up in there with a set-screw. When he put the wire through the board into the switch I set it up with a set-screw; I don't know how I got my fingers in contact with the switch—with the brass of the switch—but I got it so sudden that I don't know how I got it.

Q. Where was this do you say?

2213 A. At 80th street and Avenue B.

Q. In the station?

A. Yes.

Q. Were you close to the dynamo?

A. About as far as from here to that door, sir.

Q. What kind of a dynamo is that.

A. A Fort Wayne and Jenne.

Q. Is that alternating or continuous?

A. Yes, sir.

Q. Do you know what voltage?

2214 A. They told me it was a little over 1,200.

Q. We will prove that from another source; go on and tell us what happened?

A. When I received the shock I was taken just like that (indicating) with a terrible vibration all over my body and I was brought right down. I could feel myself going right down toward the switch, and I had no power at all to draw myself away.

Q. Were both your hands on these conductors?

2215 A. Yes, both of my hands were on these conductors, and I was right down toward this switch, and this terrible vibration—it seemed as if there was a vibration every second.

Q. Vibration of what; of your nerves?

A. Of my whole body—shaking. I don't know how long it lasted; it seemed some little time, but I was conscious all the time. I thought I was going up above all the time.

Q. You had a sensation as if you were going through the air?

A. No, I had a sensation as if I was going to see the angels. 2216

Q. What kind of sensation did you have when you found yourself falling?

A. I mean I couldn't see—my eyes were closed—I closed my eyes.

Q. You mean you had loss of eyesight?

A. I had lost my sight, yes; but I don't know whether it was instinct or what it was; but I remember my friend coming up and closing the switch—that is, I thought he did. 2217

Q. You were conscious of that?

A. Yes, I was conscious. I didn't see him, but I could feel him coming up near me like, and as soon as he drew the switch back the electricity gave up on me, and I was standing like this, and I turned right around and laid down as easy as if I laid down there on the floor.

Q. Did you do it voluntarily, or not?

A. No, I knew what I was doing. I couldn't help myself. I lay down as easy as if I was to lay right down here, without hurting myself. 2218

Q. What was your condition, Mr. Mackin? Were you in great pain?

A. I couldn't say I was in great pain, but I got a terrible feeling across my chest, as if—just as if something was going to burst in me with every vibration I got from the machine, and I could hear every revolution from the machine, and I could imagine it in my body. 2219

Q. Was this after you left?

A. No, at the time I was receiving the shock.

Q. After you laid down?

A. As soon as I laid down I kind of raised my head and got up and seemed kind of dazed, and I asked one of the fellows what was the matter. I jumped up on my feet and walked to the other end of the building.

2220 Q. Did you lose consciousness?

A. I didn't lose consciousness at all, and as soon as I got up there I was all right, and about five minutes afterward I commenced to tremble and shake.

Q. Were you suffering?

A. No, I didn't feel anything afterward.

Q. After this trembling and shaking?

A. This trembling and shaking was merely nervousness. I didn't feel any effects of it afterward.

2221 Q. The whole thing passed off?

A. Passed right away after I got up.

Q. How about your hands?

A. My hands—I didn't know—they were burned until I got up to the other end of the room. I went up and got away, and kept away from the machine, so as to know that I was safe, and one man came up and asked if I was burned, and I said, "I guess not," and he looked at my hands and saw I was, and he put some stuff on it—some preparation—and done them up. 2222

Q. Were your hands badly burned?

A. You can look at them if you want to.

Q. Just describe it?

A. This second finger on the joint—there is a hole on the joint.

Q. Are all those four fingers burned?

A. No, three fingers.

Q. Which three?

2223 A. Three of them here.

Q. Which three?

A. The first, middle and third. I won't say positively. I have got so many evidences of it here, that it is hard to keep track of them.

(The witness's person exhibits a blister on the finger, on the inside and back of the knuckle of the second finger, and also a break in the skin.)

By the Referee: 2224

Q. Your other fingers were burned in the same way?

A. Yes; it was the back of it came in contact.

(The witness's person also exhibits, on the other two fingers of the hand, burns on the surface—scars, and also on the third finger of the left hand a scar looking like a blister.)

2225

Q. That is what you call the hole?

A. Yes; over here is more like a hole (indicating the other hand).

(The witness's person also exhibits a burn on the little finger of the hand.)

Q. When did this happen?

A. Tuesday morning at 10 o'clock.

Q. This week? 2226

A. Yes, sir.

(The witness's person also exhibits on the third joint of the hand an extensive blister and festering sore, on the knuckle of the third finger from the thumb; a similar one toward the end of the second finger, the skin being broken and appearing more like a cut.)

By Mr. Cockran:

Q. When did this occur? 2227

A. Tuesday morning at 10 o'clock.

Q. Last Tuesday or Tuesday week?

A. This week, Tuesday.

(The witness's person also exhibits a blister on the inside of the fourth finger of the right hand at the end of it, and each thumb slightly scorched at the end.)

Examination of the witness suspended.

2228 **Ludwig Gutmann**, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

Q. What is your business?

A. I am an electrical engineer.

Q. By whom are you employed?

2229 A. I am at present with the Fort Wayne and Jenne Electric-Light Company.

Q. Do you know the capacity of the machine that has been described here by this gentleman who has just testified?

A. Yes, sir.

Q. What is its capacity, running in the ordinary way?

A. It will run from 50 to 60 amperes and 1,000 to fourteen or fifteen hundred volts.

2230 Q. And the machine, in operation, runs between those limits?

A. Yes.

Q. Now, do you remember the incident of the dog that was killed and came to life again—the dog Dash?

A. I don't remember the case, but I have heard of it.

Q. Were you the one that supplied the light to that store?

A. The Manhattan Electric-Lighting Company supplies the lights. 2231

Q. Are you familiar with the light—the power of the wires?

A. Yes, I am.

Q. Do you remember the way the thing occurred?

A. I have inquired into the matter.

Q. Let me describe it to you as it was testified to here. A telegraph wire had crossed this wire that fed this jewelry store, and it was lying on the ground. The dog stepped upon it, jumped in the air, and then

fell on it, with his right fore-arm or his right fore-leg, 2232
just at the junction of the shoulder, touching the wire, and it drew his hand around so that the left side of the snout was on the wire. Would he receive the full voltage, being in such a condition as that?

A. If he touched this wire he makes a ground connection.

Q. He laid right on the ground?

A. I don't want to say that he gets the full shock. That depends on the ground, whether the ground was 2233
wet or dry, and I don't know that.

Q. What difference would it make if it were wet or dry?

A. If the ground was dry, he would get the full charge. I mean he would not get the full potential, on account of the resistance of the ground. If it were wet, he would get a pretty good shock—the potential at that point is 1,000 volts.

Q. What would be the potential if the ground was dry? 2234

A. The potential at that point would be the same, only the dog wouldn't get the same shock through him, because the resistance is so much greater; the current wouldn't travel so easily through him.

Q. The current wouldn't travel so easily through him?

A. No, sir.

Q. What difference would it make on him?

A. It would make a slight difference; it wouldn't 2235
make much difference.

Q. He would get about 1,000 on a moist ground?

A. Yes, sir.

Q. And about what voltage would he get on dry ground?

A. If he had good metal contact he would get 800 or 900 volts.

Q. Now, suppose he wore a collar around his neck; would that act as an electrical conductor?

2236 A. A collar—a leather collar?

Q. With an iron covering?

A. If his skin would come in contact with the iron then he would make a better contact; if he would not touch the iron, if he would only touch the leather, the collar would be an insulator?

By the Referee:

Q. Suppose his nose would press right down upon the wire and his fore-leg and hind-leg would press against it? 2237

A. On the same wire?

Q. Yes, and the balance of his body was on the ground?

A. He would make a very good connection.

By Mr. Cockran:

Q. The electricity would have a good show at him?

A. Yes, sir.

2238 Q. Is it an alternating current?

A. Yes, it is an alternating current.

Q. An alternating-current machine?

A. Yes.

Cross-examination by Mr. Poste:

Q. Do you understand that it was a telegraph wire that lay on the ground, and not your own electric-light wire? 2239

A. This gentleman says it was a telegraph wire.

Q. Passed over the electric-light wire?

A. Yes, sir.

Q. Now, do you say that all the current that was on that electric-light wire went on to that telegraph wire? Will you swear to that?

A. No, I do not swear to that, that all the current passed to it; that is immaterial. We had the full pressure, and, according to the resistance of the body, the current will rise; and it is immaterial whether at that 2240 point there is only ten or fifty—if there are only five amperes flowing, and the resistance materially decreased, there will be ten, fifteen or twenty flowing through that same wire until it meets with some resistance.

Q. You swear that all the electrical energy conveyed by the electric-light wire passed down to the telegraph wire?

A. That depends on the connection. 2241

Q. That is what I want to know—it depends upon the connection?

A. Yes; if the dog has been—has, immediately after making connection, been thrown down, constantly, we must suppose that there was a considerable charge in that wire—the full potential. There is all probability that the full potential is to be found in that wire, and not half of it, on account of the contact.

Q. Do you know anything about the character of the contact? 2242

A. No, I do not.

Q. You don't know anything about that?

A. No.

Q. Did you ever examine the place?

A. No.

Q. Never examined the electric wire after the telegraph wire had passed over it?

A. No, not personally.

Q. Was the electric-light wire insulated? 2243

A. Yes, the wires are insulated. The wires pass along, and branch wires come across the street and go down into the building at that point. Of course you must suppose if the ground occurs that the insulation is penetrated by the current itself; the current, seeking the shortest road, will go through the insulation. Wherever it finds a weak spot it carbonizes it, and you get the full charge at that point.

Q. Does not the question whether the full charge

2244 passed down the telegraph wire depend somewhat on the question as to whether there was a groundage or leakage somewhere on the electric-light wire?

A. Generally there is a—generally there are leakages, and you can—it is very difficult to say, that is, it has been difficult up to the present time but it is not now—it has been difficult to insulate wires properly and the position has been not to properly insulate the wires. Now there is no difficulty in insulating the wires properly, and consequently it was a bad state of 2245 affairs formerly for grounds.

Mr. Cockran:

At this particular time, the question is addressed to this particular time—I understand, Mr. Poste, is it not—the particular time when the dog suffered?

The Witness:

2246 It is probable that there was a ground—not a material ground, though.

Q. Now, does not the question as to how much of the electrical energy on that circuit—on that electrical wire—which passed down the telegraph wire, depend somewhat on where that wire was?

A. Yes.

Re-direct examination by Mr. Cockran:

2247

Q. As long as the dog was there, you say this potential would keep rising?

A. The potential is kept constant; the current would rise and have a greater effect on the dog to destroy him.

Q. Suppose he laid there twelve minutes—that would give him a good show?

A. Oh, yes; he would have a good dose, as much as he cared for.

Q. And the length of time that he was there would be indicated to some extent by the burn, would it not? 2248

A. Yes.

By the Referee:

Q. How much current was this machine generating the day Mr. Mackin, the witness who was just upon the stand, got the shock—Tuesday?

A. We had on at that time three circuits, and the average potential going at that time was eight to ten amperes. 2249

By Mr. Cockran:

Q. What was the voltage?

A. 1,020.

By the Referee:

Q. Were you there at the time running?

A. No, but we keep a constant record of every day and every hour, so that we know always what potential we have on those machines. 2250

FRANK H. MACKIN'S examination resumed by Mr. Poste:

Q. You were at work on the switch-board?

A. Yes, sir.

Q. What were you doing?

A. Connecting a circuit: connecting five new switches on the board. 2251

Q. I suppose there was a switch on each circuit?

A. There was a number of switches on each circuit.

Q. Were all these switches that you were putting on all on the same circuit?

A. There was one row of switches from the bottom to the top—five switches. We were putting another on —it was on the bottom—next to the bottom switch that I was working.

2252 Q. How high was that from the floor?

A. There was a platform about two feet high, and it is about two feet wide, and the first switch is right on to the platform.

Q. The first what?

A. The first switch comes right down and touches the platform, and the second is above it about 15 inches.

Q. And you were working on the switch about 15 inches above the platform?

2253 A. Yes, sir; I was working in the centre of it.

Q. And you were in the centre of the platform?

A. I was leaning over the platform.

Q. How wide was the platform, do you say?

A. About two feet.

Q. How wide was the place occupied by this switch?

A. The place occupied by the switch?

Q. Yes?

A. About eight or nine inches wide; the switch is—

2254 Q. (Interrupting.) Horizontally?

A. Yes, eight or nine inches wide, and it is about 12 or 14 inches high—12 inches, I believe.

Q. Now, state just what you were doing to that switch at that time?

A. I was putting in the set-screw. The wire was pushed in from the rear, and I was putting in the set-screw to tighten up the wire and the thread—the thread in the switch. It didn't fit very well—I couldn't get

2255 the screw in it, and I was working on it, I guess, for a minute before I received the shock, trying to get the thread to catch, and I must have put my other hand over on the switch, or else I pushed the switch-handle up with my elbow or with my arm, and made the connection on the trunk-line, which was lying on the switch in the upper part of the switch. The switch is double action. They connect over, above and below, and the top is the trunk-line, running across the whole length of the switches.

Q. Was it the back of your hand that touched this? 2256

A. Yes, the back of my hand.

Q. That touched these wires?

A. Didn't touch any wires at all.

Q. Touched the switches?

A. Yes, touched the switch.

Q. In the case of both hands?

A. Yes, must have been both hands. I don't know how I done it or anything about it. They found a little skin on the switch. 2257

By Mr. Cockran:

Q. What did you say about skin?

A. They found a little skin on one of the switches.

Q. Which of the switches?

A. On one of the jaws of the second switch—the one that I was working on.

By Mr. Poste: 2258

Q. Do you know what part of the switch your hands touched? Do you know?

A. No, I couldn't swear, because I—I was blinded at the time, and I couldn't swear to anything about the shock, only I got it. That's all—I knew what I was doing when I got it. Before I got it I had the screw-driver in one hand and the screw in the other, and I was connecting it.

Q. Wooden-handled screw-driver? 2259

A. Yes, wooden handle.

Q. Did you fall over this platform?

A. No, sir; I stood up; I suppose my knees braced me up. I just kept going down like that (indicating).

Q. Are you positive you went down like that, or was that the sensation?

A. That was the sensation. I felt myself going down, and they told me afterward that I almost—had my head almost on it.

2260 Q. I am asking what you know about it?
A. Yes, sir.

Mr. Cockran:

Give your best sensations about it?

The Witness:

I could feel myself going down; I could feel my nerves all straighten out, you know, and cramped up, 2261 and felt myself drawn right up like that (indicating); I couldn't lay down.

Q. You didn't have hold? It was simply your hands?

A. There was something holding me there, and I tried to get away. I could remember that. I remember wanting to get away. I thought if I could only pull myself away that I would be all right.

Adjourned to Monday, July 22, 1889, at 10 A. M. 2262

New York, July 22, 1889.

Met pursuant to adjournment.

Present, counsel as before.

The Referee:

2263 (To Mr. Cockran.) Counsel desires to know if it may be stated on the record that you have closed your case, with the exception of one or two medical men that are out of town?

Mr. Cockran:

I wouldn't like to stipulate that, because I do not think it is absolutely necessary in a case of this kind, but still I think the testimony will be of the same character.

The Referee: 2264

It is simply cumulative?

Mr. Cockran:

It would not be now. For instance, this morning I received a letter containing a remarkable case. I did not think it would be well to delay this reference in order to send for him; it would require a witness to be called from Delaware County. I do not think, in a reference of this character, that it would make any 2265 difference what time I put in this testimony. I have no witnesses now, and I certainly would not object to Mr. Poste putting in some of his witnesses at any time.

Mr. Poste:

I think, Mr. Cockran, that you ought to close your case before I begin mine.

2266

Mr. Cockran:

It is substantially closed now.

Mr. Poste:

That does not mean anything substantially, because if you say you are liable to produce some of these extreme cases like the one from Delaware County, or if you are going to introduce medical testimony, I ought to know it. 2267

Mr. Cockran:

I will only produce medical testimony of the character of those doctors. There is one of those doctors who is out of town. It is ridiculous to hold this reference open until they come back. You know what the character of it will be; I have told you the character.

2268 Mr. Poste:

I think, in regard to these cases where people have received injuries, that puts me to the necessity of explaining the case; in other words, to call back experts when Mr. Cockran brings in these witnesses. I think he must have brought in the testimony of nearly a dozen witnesses, and it seems to me that ought to be enough.

2269 Mr. Cockran:

I think it would be under ordinary circumstances, but I do not want to preclude; I might get an instance to-morrow or the day after.

Mr. Poste:

The way I look at that is this: Such cases are liable to happen any time, and if you are going to prove every case that comes up we will never end.

2270 Mr. Cockran:

No, I am not going to prove every case. There are probably ten men now that I can put on the stand that have received various kinds of injury, in their opinion, with a 1,050 volt current, but that would not be as strong as those I put in.

The Referee:

2271 The difficulty with that kind of witnesses is, as Mr. Poste suggests, when you get that evidence in, Mr. Poste will want to explain it, and the more you put in the more he has got to explain.

Mr. Cockran:

He would not get any stronger case.

Mr. Poste:

If that be so, what is the necessity of putting in any more.

Mr. Cockran: 2272

It would depend upon the character of the evidence.

The Referee:

That question can, probably, be disposed of afterward.

Mr. Poste:

In the trial of litigated cases, where there is a financial interest involved the court will restrict the number of witnesses if the evidence is cumulative. 2273

Mr. Cockran:

That is merely for the convenience of the court. I have never known reference where they would not allow it. I was perfectly willing, as far as medical testimony was concerned, to allow Mr. Poste to select any six leading medical men of the profession. My opinion was that they would testify exactly like Dr. 2274 Loomis, and if they did not I was willing to stand by it. I do not think there is any earthly necessity of establishing a strict rule.

The Referee:

We will assume that the testimony will be simply cumulative.

Mr. Cockran: 2275

Yes.

The Referee:

With that idea in view Mr. Poste will proceed with his case.

ALFONSO D. ROCKWELL, called as a witness on behalf of the people, being duly sworn by the Referee, testified as follows:

2276 *Direct examination* by Mr. Poste:

Q. You are a physician?

A. Yes, sir.

Q. And surgeon?

A. Yes, sir.

Q. Where do you reside?

A. In New York, 113 West 34th street.

Q. How long have you been engaged in the practice of your profession? 2277

A. 25 years.

Q. In this city?

A. Excepting my service in the army.

Q. You were in the army?

A. Yes.

Q. As a surgeon?

A. As a surgeon.

Q. Have you any specialty in medical practice?

A. Yes, sir.

2278 Q. What is it?

A. My specialty is nervous diseases and what we term electro-therapeutics.

Q. For how long a time have you made electro-therapeutics a specialty?

A. About 20 years.

Q. Are you connected with any medical college or institution?

A. Yes, sir.

2279 Q. What?

A. The New York Post-Graduate Medical School and Hospital.

Q. How long have you been connected with that institution?

A. A little over two years.

Q. Now, in connection with the practice of your profession and your specialty, I suppose that you have made special investigations into the habit of electricity generally?

Mr. Cockran: 2280

Into the habits of electricity?

Mr. Poste:

Into the subject of electricity generally.

A. Yes, I have made more or less investigations.

Q. Have you made any investigations upon this subject of resistance of the human body?

A. I have. 2281

The Referee:

That is as to the electrical current?

Mr. Poste:

Yes.

A. To the electrical current; yes.

Q. State whether or not the resistance of the human body to the electrical current keeps up under the 2282 application of a current of electricity—whether the resistance keeps up under the application?

A. No, sir; it does not, according to my observation.

Q. What is your observation upon this point?

A. Upon the point, which?

Q. One moment—I haven't finished my question. What is your observation upon this point: Is there any relation between the rapidity of the fall of such 2283 resistance and the degree of electrical energy applied, in your opinion?

A. Yes, I think there is.

Q. Well, state your opinion and observation upon that point—does the rapidity of the fall of the resistance depend, or is it proportionate, to the degree of electrical energy applied, in your opinion?

A. My observation would lead me to say that the resistance falls more rapidly when currents of low potential are used.

2284 Q. Dr. Sachs, a medical expert produced by the counsel for Kemmler, has testified that taking men together the fall of the resistance under the application of an electrical current reached a point on an average between 1,200 ohms and 400 ohms, those figures representing the minimum resistance of the human body on an average under the application of an electrical current. State whether or not your observation on that point practically coincides with his?

2285 A. Yes, practically—approximately.

Q. Under the current produced by a galvanic battery of a thousand cells, doctor, in series, what time, in your opinion, would be required to reduce the resistance of the human body from its maximum to its minimum?

A. Well, it would be only an opinion, because I have never used anything like that.

Q. Yes; I am calling for your opinion simply?

A. But I should say that it would be almost in-

2286 stantaneous.

Q. Now, in securing or attempting to secure the therapeutic effects of electricity upon the human body have you found in your practice that the resistance of the human body to the currents is a practical obstacle? Now I want you to state fully your observations bearing upon that question.

A. Well, the resistance of the human body, of course, is always an important factor—or rather the re-

2287 sistance of the cells. But in the practice of medical electricity it is no practical obstacle. Perhaps I might better express my ideas by this illustration: A man will bring himself for treatment by electricity, and will be subjected to a current of fifty volts—that is about the number that we use in medicine—and by using electrodes such as we use in therapeutics properly prepared, we may obtain, for example, a hundred milliamperes with the instrument of precision that is generally used in practice. In medicine we do not use any rheostat because we are guided entirely by the 2288 measurement after it has passed through the body—the current. I find that no matter what man presents himself—

By Mr. Cockran:

Q. I beg your pardon, I did not catch that. You find what, doctor?

A. No matter whoever else—in all other cases that came under my observation, if I used the same voltage and used the same careful preparation in the adjustment of the electrodes, with a number of voltage, the same amount of voltage, I got approximately the same measurement—that is practical experience that we have in therapeutics. 2289

Q. The same measurement of what?

A. The same milli-ampere measurement; we use a fraction of an ampere.

By Mr. Poste: 2290

Q. Would that indicate a reduction of all subject to practically the same resistance?

A. Approximately the same resistance, I should say.

Q. That would be a deduction from Ohm's law, would it not?

A. That would be a deduction from Ohm's law.

Q. What effect upon the resistance of the human body is produced by increasing the size of the electrodes used? 2291

A. It very materially lessens the resistance, of course.

Q. What effect upon resistance—the registered resistance—of the human body under measurement is produced by an imperfect contact with the electrode?

A. Oh, it is such that it has all the difference in the world in regard to therapeutic effects—the adjustment of the electrodes—the size, and the adjustment, and the contact.

2292 Q. Yes, my question was directed specially to the resistance of the respiration—the measurement of the resistance? Is the resistance increased or diminished if the contact of the electrode is imperfect?

A. If the contact of the electrode is imperfect, the resistance, of course, is very much increased, I should say.

Q. What observations have you made upon this subject? Does the resistance of the human body to electrical influence vary materially from day to day in the same person? 2293

A. There is a varying degree of resistance and susceptibility, but it does not vary very greatly, provided the proper preparations are taken in overcoming the resistance of the skin.

Q. Will you say it varies somewhat? Can you state in ohms what your observations were on that point—the variations from day to day of the same individuals?

2294 A. No, I can not say particularly because it is very seldom that we use the rheostat in medicine, excepting a water rheostat which enables us to decrease or increase the current without a shock, so that I can not say.

Q. Well, what is your opinion on it? Is that variation of resistance—does it indicate a large number of ohms, or is it—

A. (Interrupting.) It must necessarily indicate a small number of ohms, because the amount in measurements after that current is passed varies very little. 2295 The measurements on the meter vary, of course, according to the resistance, but the measurements do not vary much.

Q. Have you noticed any varying degrees of susceptibility in different persons to electrical effects in your practice?

A. Oh, very decidedly.

Q. Now, state your observations on that point, and what you mean by variation in susceptibility?

A. I mean the subjective symptoms which are presented by the patients themselves. Some people are very susceptible to the influence of electricity. 2296

Q. How is that susceptibility indicated?

A. It is indicated by nervousness, perhaps, and the nerves are more susceptible in some persons and they complain a little more of a burning sensation. And then again, in some patients the muscles contract more readily than in others—they feel the contraction to a certain extent more than other patients do. That is a 2297 subject which is rather wide, because it goes into not only the primary but the secondary and permanent effects of electricity upon the system, so far as a great variety of conditions are concerned.

Q. I do not quite understand what you fully mean by your answer, doctor. Now I will ask you this question: Do you think that the susceptibility is anything more or other—the difference of susceptibility is anything more or other than the difference with the degrees of stoicism and ability to bear the pain? 2298

A. I think that expresses it very well. I think that would be it.

Q. Is the result of your observation, that aside from indication of pain, that these varying degrees of susceptibility, or whatever you call it, would prevent you in some cases producing practically the same electrical effects upon the person indicated?

(Question withdrawn.)

Q. Take persons that indicate these differences that 2299 we have just been considering, and state whether those differences, in your opinion, would prevent you from obtaining the same electrical effect upon all of them with practically the same current?

A. No; I think I can answer that in the negative.

By the Referee:

Q. Of course that question assumes that it is applied in the same way, with the same degree of care and preparation?

2300 A. With the same degree of care and preparation, of course.

By Mr. Poste:

Q. Doctor, have you ever been present at experiments intended to test the effects of powerful electrical currents upon animal life?

A. I have.

Q. Where were those experiments held?

2301 A. In Mr. Edison's laboratory in Orange.

Q. When was that?

A. That was some months ago, sir: during last spring. I do not recollect exactly when.

Q. Do you remember what persons were present at those experiments?

A. I remember a number of them.

Q. Who was there?

A. Mr. Brown, Dr. Carlos McDonald, who invited me to be present.

2302 Q. Who is he?

A. Dr. Carlos McDonald was then superintendent of the insane asylum at Auburn, and is now one of the Commissioners in Lunacy of this State.

Q. Who else was present?

A. A Dr. Patton, I think, of Philadelphia, and several others whose names escape me.

Q. How many animals were experimented upon at that time?

2303 A. I think nine or ten: I think nine.

Q. What were they?

A. I believe four were calves, four were dogs, and one was a horse.

Q. What current was used in those—what kind of an electrical current was used in those experiments?

A. From the electric dynamos such as Mr. Edison has in his laboratory.

Q. Do you know whether it was an alternating or a continuous current?

A. I was told, I understood, it was the alternating current. 2304

Q. Did you take any observations as to measurements and voltage of the currents used in those experiments?

A. I understood in each case what was the voltage: I was—

Q. Did you take any part yourself in the experiments?

A. The only part I took was at the suggestion of 2305 Dr. McDonald, suggesting the placing of the electrodes in order to experiment as to the best position for deadly effects.

Q. Did you make a suggestion of that kind?

A. I did.

Q. What was the result of the application of the current to these animals?

A. The result was instantaneous death in every case but one.

Q. What case was that? 2306

A. It was—I forget whether it was the case of a dog or calf—I did not take notes myself. But the solution was accidentally spilt; it moistened the hide of the animal, so that the current was diverted.

Q. You mean the solution ran down the hide?

A. I mean the solution ran down the hide; yes, sir, from one electrode to the other.

Q. What have you in mind when you speak of the solution?

2307

A. I think this was a solution of sulphate of zinc.

Q. Used for what purpose?

A. Used for the purpose of overcoming the resistance.

Q. Lessening the resistance?

A Lessening the resistance, yes, of the object in contact with the electrodes.

Q. Did that animal escape?

A. Oh, no; the animal was apparently—I do not

2308 know whether it was dead or not, but another shock killed him, a few more—continuing it for a while.

Q. Did you make any inspection of these animals after the shock was applied?

A. Yes; simply by putting my hand over the heart to see if there was any heart-beat.

Q. Were they dead or not—in your opinion?

A. In my opinion they were quite dead.

Q. Do you remember any of the details as to the measurements of the voltage, or current used? 2309

A. I recollect that in the horse the voltage was, I think it was, a thousand volts; I cannot say exactly. Then it varied from 400 to 1,000.

Q. With the other animals?

A. With the other animals.

Q. I think you have already stated, but I will ask you again, whether, with the exception of this animal that you have mentioned, requiring a second shock on account of the diversion of the current, whether death 2310 was instantaneous?

A. In the other animals?

Q. Yes.

A. I conclude that it was.

Q. How were the electrodes applied to those various animals?

A. The electrodes were applied, one to the head, the vertex, or what would coincide with the vertex in a man, and in several cases they were applied, one was 2311 applied so that it more directly influenced what is termed the phrenic nerve, and the other end of the electrode was bound tightly around the leg of the animal above the knee.

Q. Did you witness any other experiments of a similar kind?

A. No, sir, excepting one or two little experiments I have made in my office upon small animals.

Q. Now, doctor, in your opinion, can the electrical current be applied to the human body by artificial

means in such a manner as to produce death in every 2312
case?

A. That is my opinion.

Q. Can that effect be produced instantly, in your opinion?

A. I think so.

Q. Can an electrical current be applied to the human body by artificial means in such a manner as to produce death instantly and without pain, in your opinion?

A. I think so. 2313

Q. In every case?

A. I think so.

Q. State what your opinion is upon this question: In applying such a current of electricity to the human body, can the electrodes used be so constructed and adjusted that there will be no possibility of burning the body under the application of the current?

A. I think there could be no probability of burning
the body under a current of lethal energy sufficient to 2314
cause—

Q. Sufficient to what?

Mr. Cockran:

Sufficient to kill him?

A. If it is a current of lethal energy it would be sufficient to kill him.

By Mr. Poste: 2315

Q. Now, doctor, if the electrodes are applied one on the neck, at the base of the brain—we will say in the case of a man—and the other at the feet or on the lower limbs, the man being in a recumbent position, how, in your opinion, would the current of electricity be diffused through the body of that man?

A. It would be diffused—it would be diffused generally through the body.

2316 Q. Well, how is your opinion?

A. Follow the path of the least resistance.

Q. How is that?

A. Following the paths of the least resistance.

Q. What parts of the human body, the interior, present the path of least resistance to the electrical current, in your opinion?

A. The muscular tissues, those tissues that are more fully charged with saline solution.

2317 Q. Where, in your opinion, is the major part of resistance of the human body to the electrical current situated?

A. In the skin, of course; including bone.

Q. In the skin?

A. Yes.

Q. Well, the saline fluid you have spoken of—is there a diffusion generally throughout the body,?

A. Yes, sir.

Q. And most abundant, I think you stated, in the

2318 muscles?

A. In the muscular tissues:

Q. How about the blood?

A. I did not mean to exclude the blood. I am speaking of the tissues so far as their relation to other tissues are concerned, the blood perhaps more than anything else.

Q. The blood itself—can you call that a saline fluid?

2319 A. Certainly, yes.

Q. Doctor, voltage for voltage, what kind of current, alternating or continuous, under high pressure, is, in your opinion, the most destructive to human life?

A. Under low pressure I have found the alternating current to be the most destructive, and I therefore suppose it to be so under high pressure.

Q. Now, in the execution of a criminal by electricity, what form of electrodes would you advise?

A. I should advise an electrode of as large a size as 2320
would cover the whole surface of the brain—a metal back, with either a covering of sculptor's clay or of absorbent cotton—chamois skin.

Q. That should be moistened or not?

A. That should be very thoroughly moistened with a saturated solution of some saline substance such as salt, sulphate of zinc.

Q. Well, doctor, now give us your opinion as to the amount of electrical energy which with the use of such 2321
electrodes, in your opinion, would be sufficient to produce death in every case when applied to a human being?

A. I should be very much astonished if one thousand volts did not produce death in every case if the preparations were properly made.

Q. Would you have any doubt at all as to the killing effect of fifteen hundred volts.

A. No, sir; I should have no doubt about it.

Q. Please tell us what, in your opinion, would be 2322
the pathological effects on the human organism of such a current taking the various important organs of the human body?

A. Well, sir, such a current would, I suppose, by its mechanical effects, produce a rupture of tissues in the interior of the body, the tender tissues; and it would immediately stop the action of the heart through the interior—produce paralysis of the nerve centers. No one knows exactly the details of the effects, but that is 2323
about it.

Q. What effect would it have upon the lungs, do you think—upon the breathing of the subject?

A. It would stop the action of the heart instantly, and therefore stop respiration.

Q. My attention was called to a suggestion that may refresh your recollection as to the experiments which you attended, in which the first application of electricity did not produce death upon the animal.

2324 State whether or not the fact was that the electrodes slipped together, according to your recollection in that case?

A. I think I do recollect something of that occurrence, now I think that I do. There was some disorder in some one of the experiments, but I do not recollect which one.

Cross-examination by Mr. Cockran:

2325 Q. Doctor, you said that no one knew exactly what the effect of the current would be—I understood you to say so?

A. Not exactly; no, sir.

Q. Then what you say is purely speculation—just judgment—opinion as to what would probably occur?

A. You mean as to the pathological effect?

Q. Yes.

A. I don't know; I have never vivisected, so I can-
2326 not state positively about it.

Q. What you have testified to, then, is not a demonstrated fact; it is purely a kind of a scientific opinion—

A. (Interrupting.) I—

Q. (Interrupting.) Isn't that so, doctor?

A. I have read, sir, that that effect has taken place after a destructive current of electricity.

Q. What effect, doctor?

A. The effect of tissues being burned.

2327 Q. But does that follow in every case?

A. I don't know.

Q. It does not follow that that will occur in every case?

A. I don't know.

Q. That is just exactly it—you and I are on the the same basis?

A. I should think that it would.

Q. Then I am right in assuming that your testimony in that respect is, so to speak, a scientific guess—

not exactly a guess such as an unscientific person 2328
would make—but a guess as to the effect of certain things—certain causes—the precise character of which is not known?

A. You are referring merely to the pathological effects?

Q. Yes.

A. I know nothing about it except what I have read.

Q. Doctor, I assume that you have read about as 2329
much upon that subject as has been written, and I assume that you are an authority upon everything that has been discovered by scientists in this direction; so my question, when I speak of your knowledge, I speak not only of what has come under your own observation, but of your knowledge of things that have been demonstrated by the experiments of others—not the speculations of others, but the demonstrations of others. Now, is it satisfactorily demonstrated—has it
been demonstrated anywhere what the pathological 2330
effect of a current of this character would be upon the human system?

A. I cannot say.

Q. I think I may fairly assume, doctor, may I not, that if it had been discovered you would know it?

A. Possibly, and possibly not.

Q. I want more than that. Don't you think you would know it? You have devoted your life to the study of the subject of electrical effects upon human 2331
beings?

A. Yes, sir.

Q. Now, you regard that as a matter of very little importance?

A. Very little importance, so far as the relation of electricity to diseased conditions are concerned, because we do not deal with anything possible that would have any such effect upon the subject.

Q. Wouldn't it be a matter of very great import-

2332 ance to know, in arriving at some knowledge of the effects of electricity, to understand what the pathological effects of the current would be?

A. No, I don't think it would be, in the department of electrical therapeutics.

Q. But I understand you to say that if the matter had been discovered and had been the subject of discussion, you would be likely to know it?

A. It might have escaped my observation.

2333 Q. Then you cannot give me any information as to whether it has ever been discovered?

A. I cannot tell you where.

Q. You can simply tell me that you don't know.

A. I don't know.

Q. Now, in answer to the questions which Mr. Poste has put to you, and, by the way, let me ask you, have you ever seen those questions before?

A. Mr. Poste showed me them as I came in here.

Q. Oh, yes; so you had read these questions before

2334 you took the stand?

A. I didn't read them; he had read certain of them to me.

Q. That was the first you had seen of them when you came in this morning?

A. Yes.

Q. Now, in answer to the questions of Mr. Poste you stated that you believe that a current of electricity could be generated that would kill in every instance.

2335 Did you intend to testify to that positively, or simply as a matter of opinion?

A. As a matter of opinion, sir.

Q. Simply a matter of opinion?

A. Yes, sir.

Q. You do not pretend to have any knowledge on the subject?

A. I have no knowledge what current, in regard to volts, would kill a man.

Q. And, so far as you are aware, there is no—

(Question withdrawn.) 2336

Q. So far as you are aware, science has not discovered any current that, among professional men of your character, is recognized as a current that would produce death; it is simply a matter of opinion?

A. We cannot say positively. We cannot swear to a thing until it has been accomplished.

Q. You know Dr. Landon Carter Gray, who has testified here?

A. Yes, I do. 2337

Q. You recognize him as an authority?

A. In nervous diseases.

Q. He is recognized as an authority on electricity, is he not?

A. I don't know that he is.

Q. You know Dr. Sachs?

A. Very well.

Q. He is engaged in the same institution of learning that you are? 2338

A. No, not in the post—in the Polytechnic—not the same one that I am interested in.

By the Referee:

Q. They are both post-graduate schools?

A. They are both post-graduate schools.

Mr. Cockran:

Q. Do you recognize Dr. Sachs as a skillful and expert man in that branch? 2339

A. I regard him as a very expert neuroligist. I don't know in regard to his ability as an expert in electricity.

Q. With the exception of these experiments which you have witnessed, doctor, you never saw any, did you, that have been designed for the purpose of destroying life?

A. No, sir, only as I remarked to Mr. Poste, some little in my own office.

2340 Q. Doctor, we had some testimony here of persons who have been struck by lightning. Do you think that any current could be generated by artificial means that could equal a thunderbolt in intensity?

A. I doubt it.

Q. Do you think that any current could be generated by artificial means that would tear the shoes from your feet now?

A. Possibly not.

2341 Q. Do you know, doctor, what electricity is?

A. No, I don't know that; there is a range of possibilities in our use of artificial electricity.

Q. When you come to possibilities, you and I would both be lost in speculation as to what they would be, but I mean as to the actual demonstrated power of currents?

A. I see no reason that we could not, by having certain series, generate a current sufficient to destroy any inorganic substance.

2342 Q. Do you think it has ever been done?

A. No, I don't know that.

Q. Do you think you could generate a current that would, to use the language of an expert here, shatter a broomstick?

A. I should think possibly it might be done.

Q. You think possibly it might be done. You don't claim that it ever has been done?

A. No, sir; I don't claim that it has been done.

2343 Q. And you don't claim that any such thing is known to science—you don't claim that you think it is possible?

A. No, I don't claim that.

Q. Now, doctor, in the case of a man who had been struck by lightning with such force that it penetrated through the resistance of a coat, jacket and a shirt, struck him on the breast and burned off the hair, and burned a passage as wide as four fingers down his chest, around here on the side of the hip, down the leg, and passed around behind the knee and down the inside of the right foot, tearing the shoe completely off, and passing out near the instep of the left foot, and tore the top of the shoe there, and tearing, besides, the clothes all down in its passage—that would indicate a current, would it not, of great strength and intensity? 2344

A. Of great strength.

Q. Great strength and intensity?

A. Of static electricity—not the form of current that is supposed to be used in executions.

Q. It would be a stronger current than any of those, wouldn't it? 2345

A. It would be a very different current—a current of high tension, but not what is termed a current of high quantity.

Q. Doctor, judging of its effects, it would be more powerful than any current of electricity that you have ever seen?

A. It would be a very powerful current.

Q. Wouldn't it be more powerful than any current which you have ever seen or the effects of which you have ever seen? 2346

A. Possibly it would.

Q. Wouldn't it be more powerful than any current which you have ever known—I mean powerful in every sense—than any current which you have ever known to be generated by artificial means?

A. I cannot answer that question very well, because the static electricity is so different from dynamic electricity. 2347

Q. Static electricity is pretty deadly, is it not?

A. Certainly it is deadly; it is a deadly current.

Q. It is more deadly, even, than the dynamic electricity, isn't it, if a man gets it, as a general thing?

A. No, I don't know that it is more deadly than dynamic electricity.

Q. It is equally deadly, is it not, doctor?

A. I cannot answer that question.

2348 Q. When you say that it is so different, you simply mean that you do not understand it; is that it?

A. I mean I do understand its difference. I know that it has different physical and physiological effects.

Q. Now, you know, as a general thing, static electricity is fatal to a human being when it strikes him in the way I have described?

A. Generally it is fatal, if the man receives the full force of the shock—of the bolt—the thunderbolt.

2349 Q. Isn't the burning down there a strong indication, and the tearing away of the clothes, that he received its strength to that extent?

A. It is an indication that the periphery of the body was influenced more than the nerve centers.

Q. What do you call the periphery?

A. I mean the outside of the body.

Q. Wouldn't that be so with any current of electricity that would strike a man?

A. No, sir.

2350 Q. Why; do you know that any current would strike the nerve centers?

A. Yes, we find—

Q. Are you certain, or are you speaking from speculation?

A. I am speaking from—

Q. Demonstrated facts?

A. Demonstrated facts. We find that a dynamic current—not an induced current—a very feeble current, penetrates to the brain and passes directly through 2351 the brain, a current so feeble that it causes no special pain to the person. We don't find that to be the case with static electricity.

Q. You find with static electricity that it must be a very powerful blow to make the brain feel it?

A. Undoubtedly, very.

Q. Now, doctor, aren't there instances on record in which a lightning stroke has done more harm than the one I have described, and struck in the same place?

A. I have not studied the effects of lightning 2352 strokes.

Q. You have undertaken to give an answer which would seem to dispose of this matter, and I want to know whether you are speaking from mere speculation or from knowledge?

A. I was—

Q. Go on?

A. I was simply speaking of my knowledge of the galvanic current on the brain. I don't know of any 2353 investigation with static electricity that has produced or can produce the same effect.

Q. You say you don't know. That is all. Is it your simple desire to say—

A. No, I cannot say that, because I have experimented with static electricity in a way a little different.

Q. Let us hear it, doctor?

A. For example by means of insulating a pail of water, placing it upon an insulated stool, and charg- 2354 ing the water, and putting an insulator, partly insulated, excepting its bulb, in the interior of the water with a galvaniscope attached to it; if there is any electricity in the centre of the water, it will naturally influence the leaves of the galvaniscope; but in an experiment performed with another physician some time ago we found that we got no influences there. It was performed—the experiment was undertaken with a view to furnishing us some conclusions with regard to 2355 whether static electricity, when it was used medicinally, penetrated to the interior of the system.

Q. In this case we have just described, now, your idea is that the static electricity did not penetrate to the nerve centres. Is that what you mean to say?

A. My idea was that it did not. Its full force was not expended there, but mostly on the periphery of the body.

Q. So that you think it was about skin-deep—that

2356 is, to put it plainly—your idea is that it hit the skin
and passed off?

A. It might have been more than skin-deep; it
might have been two inches deep.

Q. You say two inches deep. When you speak of
the periphery of the body, what do you mean?

A. I mean that the main force of the current was
expended upon the periphery of the body.

Q. Will you tell me what you mean by periphery?

2357 A. The surface.

Q. The surface?

A. Not the surface entirely. We say a peripheral
nerve is a nerve that supplies the outer portions of the
body.

Q. Doctor, would you be surprised to learn that
that man was paralyzed for twenty days?

A. Not at all.

Q. What would you attribute the paralysis to?

A. I would attribute the paralysis to the influences
2358 on the nerve centres.

Q. Then it did work the nerve centres?

A. Oh, yes, I claim so.

Q. I understood you to say that it did not, that it
did not work the nerve centres, and that was the way
you accounted for his escape?

A. Why, I said that the main force was expended
mainly on the periphery of the body.

Q. Why do you say that? Do you know it, or are
2359 you simply speculating on it?

A. I think so, simply because of my experiments
which I made with static electricity.

Q. From these experiments which you have just
described?

A. Yes, sir.

Q. And, doctor, that you regard as a deduction,
but not a demonstrated fact, that the energy of the
ligntning was expended on the periphery of the body?

A. Well, static electricity and the electricity in the
clouds are similar.

Q. Won't you answer my question? Was it through these experiments that you arrive at your deduction? 2360

A. I don't experiment in that line particularly.

Q. What did you make it from—what did you make this deduction from?

A. Why, the man was not killed?

Q. No, no; why did you say that in your opinion the energy of the electricity was expended on the periphery of the body?

2361

A. Simply because the lightning of the clouds is of such high pressure that if its full force had been expended on the nerve centres—the full force of the thunderbolt—I assumed it would have killed him instantly.

Q. You assumed it would kill him instantly?

A. Yes, sir.

Q. And because this particular instance tends to contradict that theory you assume that the electrical energy was not expended on the nerve centres; isn't that so? 2362

A. Well, I assume—

Q. Am I right in that; can't you answer my question?

A. I assume that it didn't get the full force on the nerve centres.

Q. What are the nerve centres?

A. The brain and the spinal cord and the sympathetic nerve.

2363

Q. If the electrical current, according to you, does not strike the spinal cord or the brain, you think that it isn't apt to be fatal?

A. No, I don't think so; I wouldn't say so.

Q. Would you think that another man receiving such a shock, exactly as has been described here, would be likely to recover from it?

A. I can't say.

Q. Can't you answer that, assuming that another

2364 man received just such a shock as that, in just the same place in the chest, and presented such appearance, and you saw him lying on the sidewalk, would you approach him with the idea that he was dead or alive?

A. I wouldn't have any idea.

Q. I say, would you approach him with the belief in advance—would you think it would be fatal to him?

A. I should think very likely it might?

2365 Q. You think very likely it would?

A. Yes.

Q. But you regard that as an extraordinary case, do you?

A. Yes, I think it is extraordinary always when persons escape death from lightning.

Q. Now, you think it is a more extraordinary case to see a man escape after such a stroke as that than if he had received a stroke that did not show such marks of power on the part of the current? Suppose, for 2366 instance, instead of tearing off all his clothes and his shoe that it simply twisted his watch chain; you would regard the escape of the man whose clothes were torn off and was knocked senseless and paralyzed for 20 days as harder than the man who received a shock in the way I have described?

A. Perhaps so.

Q. Wouldn't you? I asked you what your reasonable deduction would be?

2367 A. I do not exactly understand the question.

Q. Would you consider a man more likely to be killed who received such a shock as I here described—a stroke that burned a pathway down through his body, around his leg and tore off the clothes—would you consider that man more likely to die than a man who received a stroke in the arm and whose sleeve was slightly burned?

A. Why, yes.

Q. That is what I asked. You have told us that you regarded this as an extraordinary case. I mentioned to you the case—perhaps you were here, were you, when Dr. Gray read some instances which are on record? 2368

A. No; I was not here.

Q. You had been familiar with some extraordinary cases of strokes of lightning?

A. Oh, I have heard of them.

Q. Don't you know that your profession recognizes the eccentricities of the electric current with human beings? 2369

A. Undoubtedly; yes, sir.

Q. Now, you have been asked by Mr. Poste to describe what elements of the human body were the best conductors of the electric current. Can you tell us how an electric current passes through the human body?

A. We do not know what an electric current is; we think it is a mode of motion.

Q. That is precisely what I thought. You do not know what an electric current is? 2370

A. No, sir.

Q. Nor anybody else?

A. No, sir.

Q. You cannot tell whether there is any such thing as a current at all, or whether it may not be that owing to the electrical influences the atoms of the body readjust or rearrange themselves?

A. It is supposed that it is a kind of disturbance. 2371

Q. And when we speak of currents we merely use a figure of speech?

A. Yes, sir.

Q. Now, when you speak of the electrical current passing through the human body, you simply speak in a kind of metaphorical way? You speak rather by means of illustration than by descriptions; don't you?

A. Yes, sir.

Q. And in all that you have testified to on that sub-

2372 ject, you have testified to merely as the speculations of science; isn't that so?

A. All my testimony has not been speculation.

Q. I mean on that particular head, doctor.

A. So far as the current is concerned?

Q. So far as the current passing through the human body is concerned?

A. It is merely a speech to indicate the action of electricity.

2373 Q. It is merely a speculation to indicate science?

A. Science don't recognize a current.

Q. Now, when you say that those certain elements of the human body are more susceptible to the current than others, you are simply speaking of a belief and not of a demonstration, are you not?

A. No, I am not speaking of a belief rather than of a demonstration, but I say that certain parts of the body are influenced more than others.

Q. That is not my question. You have testified in

2374 answer to Mr. Poste that an electrical current would pass through the blood, I think you said first? That would be the most natural conductor?

A. I said that the blood was the best conductor of electricity.

Q. Now, in the application of the current of electricity or of two electrodes to a human being, are you certain that the electrical current would operate on the blood first?

2375 A. I am certain that the blood is the best conductor of electricity.

Q. That is not my question, doctor,. Now, you and I both know—you know very well, and I know slightly, that there are intervening resistances between the electrical current and the blood: isn't that so—that there are elements that are not as good conductors as blood coming between the blood and the electrodes?

A. Yes.

Q. You know that?

A. Yes. 2376

Q. Bearing that fact in mind, my question was not whether the blood was the best conductor or not, but whether you can say positively, as a demonstrated fact, that when a current is started—set in motion—that it would be certain to pass through the blood?

A. I feel that it is certain, that it is sure to pass through the parts which are the best conductors, and the blood is the best conductor.

Q. Doctor, we are not asking you about how you feel; we are asking you to testify, if you can, whether that is a demonstrated fact or simply a belief of yours? 2377

A. It is demonstrated that the best conductor of electricity is—that the blood is a better conductor than the nerves or the hard tissues.

Q. We are not making any progress—you are not answering my question. You might just as well answer it at the start.

A. Get at it again. 2378

Q. I asked you if you were prepared to say that when two electrodes were applied to any two portions of the human body and an electrical current started, that the current is certain to pass through the blood—is that a demonstrated fact?

A. It is a demonstrated fact.

Q. How has it been demonstrated, doctor? Let us have the demonstration of it.

A. Well, sir, it is demonstrated by many experiments that are given; for instance, Erb's book on medicine. 2379

Q. Let us have one of them now that has ever been demonstrated?

A. How can it pass through the body without passing through the blood?

Q. I was speaking of the first instance where you said that it strikes the blood as a natural current.

A. Your question is not a question that I can answer.

2380 Q. I know that, doctor. If that could be said at the start it would save me putting it so often. I know it cannot be answered.

A. It can be answered. It is a fact that we know the best conductor of the body is its saline solution.

Q. Yes; but don't you know, doctor, that an inferior conductor may often attract the lightning or the electrical current in preference to a better conductor if the intervening substances tend to conduct it into the inferior one.

2381 A. It will seek the route to the best conductor, always.

Q. Can it not be conducted from what might be a superior one to an inferior one, through the intervening substances?

A. If there is an intervening substance, which is a very fine conductor and conducts directly to a poor conductor, of course it will go through that quicker than one that is far away from it.

2382 Q. I will ask my question again. Is it your testimony that this electrical current will pass through the blood anything more than a deduction, or a belief of your own?

A. No, sir; our instruments of precision show that the current seeks a part that is suffused with blood, rather than one that is not.

Q. Is that an inevitable rule?

A. Is it an inevitable rule when we apply the electricity to the human body.

2383 Q. Will you tell me one experiment that was had—a number of experiments.

A. I can tell you an experiment, certainly.

Q. Let us have it?

A. If an electrode or two electrodes are placed upon the body of a person when the skin is dry, those electrodes being slightly wet, our instruments of precision will register only a few milli-amperes. As we keep the parts in position or the electrodes in position, we observe a very—an increase in the number of milli-amperes registered. As the number of milli-amperes increase so does the congestion of the skin increase, and when the congestion of the skin becomes as great as can be obtained by the electrical or chemical action of the current, then we cease to get any further increase of measurment upon our instruments of precision. 2384

Q. What does that show, doctor?

A. That simply shows that the part becomes a better conductor as the blood is attracted to the part, and necessarily by virtue of the blood itself. 2385

Q. That shows beyond doubt that the blood is a good conductor—that the blood is a better conductor than the skin, but have you ever by any experiment, or has anybody else, to your knowledge, by any experiment, seen a human body through which the electrical current has passed?

A. Oh, well, I—there is no better demonstration than I have given you.

Q. No better demonstration has been found? But I asked you if anybody ever dissected a human body through which an electric current has been known to pass that you know of? 2386

A. I think Dr. Peterson did. He has testified that he did.

Q. Do you know anything about it, doctor?

A. I do not know anything about it—no.

Q. Do you know what effect on the blood the passage of a current of electricity would have?

A. I know the effect that electricity has on the blood. 2387

Q. Do you know what effect such a current of electricity passing through the body would have on the blood?

A. It would probably coagulate it.

Q. That is what is known as polarization of the blood?

A. No, sir.

2388 Q. What is known as polarization?

A. No, we do not speak of cauterization of the blood.

The Referee:

Q. Polarization?

Q. Did you think I said cauterization?

A. Yes, sir.

Q. Polarization, I said?

2389 A. Well, that is a term—polarization of the blood—we do not use it particularly. When we speak of a body being polarized it is simply the passage of the electricity through it.

Q. Does it present any aspect that is known to science, so that you can distinguish it from blood that an electrical current has not passed through?

A. Not in medical doses.

Q. Well, how could you describe it?

A. I mean not in medical doses when applied ex-

2390 ternally, but it is known that electricity applied to the blood—oxygen goes to one pole, hydrogen to the other—alkalies to one pole, and acids to the other.

Q. Isn't that what is known as polarization.

A. Yes, sir; certainly. The effects of electricity passing through the body is a polarization.

Q. Polarization of the blood?

A. Yes, sir.

Q. Now, doctor, where any substance has been

2391 polarized by electrical influences, isn't there a tendency to polarization?

A. Certainly, there is a tendency to polarization.

Q. If the influence is withdrawn?

A. Yes, there is a tendency to that.

Q. Doctor, in the case of persons who have died, or at least in the case of persons who have been struck by lightning, has it not occurred within your reading and come to your knowledge that in some instances they would be pronounced dead on the first inspection by a physician?

A. I have read of such things, but I do not know of them. 2392

Q. There was a man named Stevens who testified here the other day that he received some 1,500 volts and I think it was 9 1-10 amperes, and that after he had been separated from the instrument of torture the doctor had pronounced him dead. Have you ever heard of an instance of that kind?

A. I do not know of any such instance.

Q. Is such a thing incomprehensible to you as a medical man? 2393

A. No, sir; it is not incomprehensible.

Q. Now, you have said, doctor, that there would not be any burning in case the current was of sufficient electrical energy to kill. Supposing it was not—supposing it did not kill right away; how would it be then? What would be the condition as to burning?

A. I said I did not think there would be any burning; I do not know.

Q. You said you did not think? 2394

A. I do not know.

Q. Would you have any doubt as to its effect in case it did not kill immediately?

A. Excuse me in regard to that language, "I do not know;" I intended to imply that a current that was sufficiently strong to kill, from 1,000 to 1,500 ohms, that there was no possibility or probability of its burning if the electrodes were properly applied. Of course, if the electrodes were kept there for a very long time— 2395

Q. That is what I want to get at, doctor. Just answer the question precisely as it is, and I will try to exhaust every possibility before I get through; I do not want to go from one subject to another. Now, I understand you to say that if the man was killed immediately, there is very little probability of burning; is not that so?

A. Yes, sir.

Q. If the electrodes were properly applied?

2396 A. Yes, sir.

Q. Now, your judgment in that respect was based upon the assumption that the man would collapse quickly?

A. Yes, sir.

Q. And that was one of the elements upon which you based your answer?

A. Yes.

Q. Now it is assumed that he did not die promptly
2397 —what would its effect be then upon the human system? Would the electrodes burn after an interval of a short time?

A. After a short time; but what length of time I do not know.

Q. About how long would you think?

A. I am not willing to make any statement in regard to that in using currents of such a power.

Q. That is a proper answer. Now, Mr. Brown testified that he would keep them wet, and by keeping
2398 them wet he would prevent this burning. Now, would not the very process of wetting them tend to divert the current from the body?

A. Not wetting the electrodes.

Q. After the current had started in, if you turned a current of any kind of water on it, would not that tend to divert the operation of the current into the body?

A. Of course, if the water suffused the patient all over.

2399 Q. Now, let us try and fancy this case, doctor. Let us assume that the two electrodes were applied to the human being and the current is turned on; now would you moisten the electrodes before or after the turning on of the current?

A. Why before, of course.

Q. Then you put them in close contact with the body, don't you?

A. Yes.

Q. They must touch it?

A. Yes, sir. 2400

Q. Now, after that, could you moisten them while the current was kept up?

A. Oh, well—

Q. You cannot answer that? It is mechanically an impossibility?

A. It is not possible to do that.

Q. It is not possible?

A. It is not possible to do that that I know of—I cannot say that it is not possible; I do not know that it is. It does not occur to me now. 2401

Q. You cannot get any moisture on them except by withdrawing them and putting some moistening substance on them?

A. I do not know of any way; it does not suggest itself to me now.

Q. If they were pulled back for the purpose of moistening, while they were pulled back the current would not be on?

A. Oh, yes. 2402

Q. That would be equally absurd?

A. Yes, sir.

Q. It would be equally absurd to a man standing with a pitcher of water there and pouring it on. That would be ridiculous?

A. That would not commend itself to me.

Q. Or even if he operated a hose?

A. Yes.

Q. And poured a stream of water on it? 2403

A. Yes, sir.

Q. If the electrical current fails to kill, in your judgment, isn't it inevitable that there would be a burning after a short time at the point of contact?

A. It is inevitable if a current is kept up. Any galvanic current will burn after a while.

Q. You have described such a moistening substance as plaster of paris.

A. I said sculptor's clay.

2404 Q. Chamois skin or a sponge? Now, with a current of 1,050 volts and several amperes passing through it, how long would it be before it would dry it up and burn through it?

A. It certainly would not burn in 20 seconds or 25.

Q. Twenty-five seconds?

A. Twenty. I do not put it at that; but I say it would not burn in 20 seconds.

Q. It would burn in a minute, wouldn't it?

2405 A. I do not know.

Q. Don't you think it would?

A. I mean to say it would not burn in 20 seconds.

Q. You know what its natural effect would be; after it started to burn, it would burn very lively?

A. You can do almost anything with electricity. I cannot tell you; I have never dealt with 1,000 volts. Of course, it would be an unintelligible answer to say that 1,000 volts would not burn after a lapse of several minutes.

2406 Q. Would it not be likely, in your judgment, to burn after the lapse of a minute?

A. It might in a minute.

Q. Don't you think it would burn in less than a minute?

A. I do not know; I cannot say that. I have seen electricity applied for 20 seconds and it did not burn.

Q. With what energy?

A. With a voltage of 1,000—25 seconds.

2407 Q. Now, doctor, Mr. Gray, I think it was, or Mr. Sachs—I think it was Dr. Sachs—stestified that the burning that ensued from contact with a high current of electricity—a strong current of electricity—is more in the nature of a chemical burn than it is from burning by coming in contact with a hot substance. Do you agree with him in that?

A. Well, the effects of electricity are physical and chemical, and the physical effects of electricity is that a certain amount of heat is involved—the chemical effect is different.

Q. Do you agree with Dr. Sachs? 2408

The Referee:

He compared it to the action of phosphorous; he said he had been burned by phosphorous.

(Question repeated.)

A. The chemical effect of the current is simply a disintegration of current and a transference of the substances from one pole to the other.

Q. Wouldn't that be a burning such as you would expect to receive from burning by phosphorous or vitriol? 2409

A. It would be substantially a burning; yes, sir.

Q. Would that be something the same thing, substantially, in effect? Would a man have the seams, and the open seams that he has when he is cut with vitriol?

A. It would be the same; it would not be the same process. 2410

Q. Not the same, but it would have the same appearance to us?

A. No, sir; not the same.

Q. Would it have substantially the same appearance?

A. No; when you get an evolution of hydrogen you get bubbles, and it looks very different.

Q. Would you have a man's skin going off in bubbles; is that what you mean? 2411

A. I mean that no—

Q. (Interrupting.) Give us something—express it in such a way that the lay mind will understand precisely what the particular effect would be?

A. I mean that when the blood is subjected to the action of the two poles—when it is directly subjected to the influence of the two poles—we get an evolution of hydrogen around the negative pole and the oxygen around the positive pole, which oxydizes everything.

Q. Oxydizes—what do you mean—it burns?

2412 A. Certainly it burns.

Q. It sloughs off the flesh the same as vitriol.

A. Yes, the appearance is very much like a burn; it is a burn.

Q. Does it burn rather by chemical action than by the application of a hot substance?

A. Yes, sir.

Q. Now Mr. T. Carpenter Smith, a gentleman from Philadelphia who testified here on Friday, describes it
2413 as a common feature of burns from contact with electric wires, charged with the 1,000 volt current, that while there would be a wound on one part of the body—at the point of contact—that at some distance off there would be a burn of quite a length that would not show until some time afterward—a kind of a thing—if you will permit me to say, doctor—a kind of a subterranean burn, if I may use the word as applied to the earth and the human body—do you understand that? Did you ever know that that was a feature with contact with the
2414 human body?

A. It is very interesting, but I imagine that it could never occur excepting where a current of tremendous voltage was applied through a very small electrode or point.

Q. But the question is, can you understand that? His description of this burn is where the wire—where he catches hold of the wires or these switches—got hold of the switches—he says there was a burn some dis-
2415 tance under the skin, which wasn't visible for some days afterward, when the doctor would cut it out and poultice it: do you understand that phenomenon—have you ever seen it?

A. I have never seen it.

Q. Do you understand it?

A. No, I can't say I understand it particularly.

Q. Doctor, in that experiment that you have told us about, with the pail of water, did you use the galvanoscope in it?

A. A galvanoscope outside of the water—I don't understand. I used the galvanoscope. 2416

By the Referee:

Q. In that experiment?

A. Yes.

By Mr. Cockran:

Q. Did you use the condenser?

A. The condenser—the whole material was used. 2417

Q. Yes.

A. The whole thing was used.

Q. Did you use a condenser in connection with the galvanoscope?

A. Condenser was used.

Q. How did you use the condenser, doctor?

A. The galvanoscope was used—I simply used a simple galvanoscope.

Q. How did you use the condenser, doctor?

A. The galvanoscope was used—we simply used a simple galvanoscope—gold-leafed galvanoscope—covered with glass and with connection outside. 2418

Q. What were those connections outside—I want to know if you had a condenser?

A. No.

Q. You didn't have a condenser?

A. No. I simply used the galvanoscope which agitated the leaves.

Q. Now, are you sure it was not an electroscope, and not a galvanoscope? 2419

A. It was an electroscope; excuse me, it was simply an electroscope.

Q. Doctor, what do you mean by measuring the resistance of a human body.

A. I have made very few experiments, sir, in measuring the resistance of the human body, but before my class at the college I have used the ordinary Siemen's rheostat, simply to illustrate the subject.

2420 Q. Well, doctor, would you claim that with the rheostat you could get accurate measurements or approximate measurements?

A. I regard them as accurate.

Q. You claim that—do you state that now, as a matter of fact, that these measurements were absolutely accurate or were they anything more than approximate?

A. I don't know whether they were absolutely accurate or not; I used the ordinary rheostat, the regular 2421 instrument.

Q. Were you here when Dr. Gray testified in regard to the difference in resistance that had been made by a German philosopher?

A. No, sir.

The Referee:

Mr. Jolly.

2422 Q. You remember that—are you familiar with his work?

A. Bulenberg?

Q. The German gentleman that wrote on the subject of resistance?

A. There is a man named Bulenberg that has written some, and I have known of his experiments.

Q. Isn't that whole question of ascertaining the human resistance, doctor, so far as you know, in an 2423 experimental state yet—the whole question of ascertaining the human resistance?

A. There is much to be learned about it; I haven't very much to say in regard to it.

Q. You know about as much about it as anybody?

A. Yes; I suppose I do.

Q. And isn't it in an experimental state now—that thing of ascertaining human resistance?

A. Perhaps it is.

Q. Doctor, would you think it possible to ascertain

the human resistance with a Wheatstone bridge as 2424
you would with a piece of metal?

A. I have never used the Wheatstone bridge, and I am unacquainted with it.

Q. Did you ever hear of its medical science as having been used to ascertain the resistance of the human body?

A. I never had any experience with it.

By the Referee:

Q. Did you ever read the work of this man Jolly? 2425

A. I have read some of it, but don't know much about it.

The Referee:

There was a large number of experiments testified to by Dr. Gray in regard to human resistance.

By Mr. Cockran:

Q. Doctor, I understand you to say—or at least I 2426
understood you to say, in answer to a question Mr. Poste put to you, that you agreed with Dr. Sachs that there was a minimum point of resistance, below which you cannot depress the resistance of any body?

A. Yes, sir.

Q. Is that a demonstrated fact, or is that simply a question of belief?

A. It is only a question of my experience in the using of the instrument of measurement. 2427

Q. You see that doesn't exactly answer my question. Is that what you, as a scientific man, would consider a demonstrated fact, or simply a question of belief based upon probabilities?

A. I have never demonstrated it.

Q. You don't know of anybody else that has demonstrated it, do you?

A. I have made—no.

Q. You agree with Dr Sachs that it is probably so?

A. That it is probably so; I have always thought so.

2428 *Re-direct examination* by Mr. Poste:

Q. Doctor, a question or two: Have you ever made observations upon the effect produced on the respiration by a current of electricity?

A. I have; yes.

Q. What have you observed in that matter?

A. I have observed that in certain forms of treatment—surgical treatment—where the resistance has been lessened by amputation, say of a breast, and the 2429 use of the electricity has been applied to the underlying tissues for the purpose of destroying the tissues in malignant diseases. I have observed that the current, when applied only in a comparatively small voltage, lessened the number of the respirations and lessened the action of the heart, so that we would fear that it would be arrested, and we would have to cease our operations.

Q. Do you think that there would be anything 2430 difficult or impracticable in the construction of an apparatus for dropping water—not allow it to run, but dropping the water upon the electrodes applied to the head and the feet of a human being subjected to a powerful current in such a manner as to prevent burning?

A. Well, that subject has never occurred to me, but I can see no reason why, if it is a subject for consideration, it can't be done.

2431

Re-cross examination by Mr. Cockran:

Q. It may be considered after two or three have been executed, I suppose?

A. No, we could try it before.

Q. Doctor, just let me ask you a question again. That reminds me that the question of pain was one that I did not ask you about. You say that you have observed that a person—where a breast has been amputated, for instance as in cancer, that where you applied the electrical current to destroy the tissues it had the effect of diminishing the respiration? 2432

A. Yes.

Q. Wouldn't anything startling have the same effect?

A. Yes, the patient was under the influence of chloroform, so that it was not a question of influence upon the mind.

Q. It would have an influence upon the nerves? 2433

A. Yes, it would have an influence upon the nerves.

Q. It was an influence upon the nervous system, and your experiments showed that it was more penetrating in reaching the nervous system of an ordinary person in the street?

A. No, I should not regard them by any means as similar.

Q. That is what I say—they are different?

A. I thought you asked me if anything startling wouldn't have the same effect? 2434

Q. Suppose you shouted "mad dog" here now?

A. I think it would make the heart go faster.

Q. Then it would increase the respiration—it would affect the respiration?

A. Yes, sir.

Q. Respiration is affected by a great many causes, as a common thing?

A. The heart and the respiration are affected by emotional causes. 2435

Q. Now, Mr. Poste put a question to you which was a remarkable question at the time, and I forgot to ask you about it. He asked you if you had observed the varying susceptibility of different people to the electrical current, and you said you had, and he asked you if you considered that that was not a condition of stoicism on the part of the person who resisted, rather than the effect of the electrical current, and I think you answered in the affirmative?

2436 A. A question of nerve and want of it.

Q. Let us look at this for a moment. I want to
take you over the subject. Mr. Pope, an electrical
expert, testified that he had made experiments to test
the resistance of people, and a great many people had
been—several people had taken hold of a brass bar,
through which he passed a current. Some let go very
quickly, some held on for quite a while, and some de-
fied the utmost strength of the gentleman who was
2437 turning the wheel, or doing whatever was necessary to
electrify the brass bar. Now, does that compare with
your experience and observation, that some would be
susceptible and others would not feel it?

A. I said—

Q. I understood you to say it?

A. I said that the muscles of some were rather more liable to conductivity than those of others.

Q. As shown by their actions?

A. Yes, I testified that they were.

2438 Q. I am right about that, that you agree with Mr. Pope in what I have mentioned—I mentioned it right that you agreed with him?

A. You understood me right; yes, sir.

Q. Mr. Pope's illustration is just an illustration of what you said, isn't it?

A. I don't know whether it is or not—I don't know
what the—if a great many people were taking hold of
a bar, would they not get varying degrees of strength
2439 of current? You mean hand in hand, sending it
through a series of people?

Q. Suppose that all had hold of the iron bar, each person putting his two hands on it—the brass bar—they would each get about the same current, wouldn't they?

A. Yes, I should say so.

Q. Well, now, with such an experiment as that, if some let go or shouted and said that they felt it, and others did not, you would regard that as a good illustration of your answer?

A. Yes, they had varying susceptibility. 2440

Q. Now, suppose a number of people stood in a line and touched hands, and the current were started, it would go through them all, wouldn't it, and then if some dropped out and couldn't stand it any longer, while others didn't appear to feel it, that would be another illustration of your theory?

A. Not so good an illustration, because those in the centre wouldn't feel it as much as those near the electrodes.

Q. Why not, if they were all good conductors? 2441

A. Oh, yes, they would all feel it the same. I was thinking of the idea that they wouldn't feel it as much if only one was there. If there was one, it would be more in degree—yes, that is an illustration.

Q. Now, doctor, when you say you think the difference in this susceptibility is due more to stoicism on their part, it is merely a speculation, isn't it—stoicism on the part of those who resisted?

A. It is a practical effect that people vary very 2442 much in their susceptibility.

Q. You undertook to give the reason. Now, I want to know if your reason is anything more than a speculation. We understand the fact that some people will resist a shock that will cause others to experience very unpleasant sensations: isn't that so?

A. Sometimes it will be more marked in some than in others.

Q. We could start a current on a brass bar and 2443 take hold of it. I might feel as if all my nerves were being pulled off, while Mr. Poste might be there and not feel it at all?

A. Yes.

Q. That is the illustration I wanted to give?

A. Yes.

Q. Now, Mr. Poste asked you if that was due to stoicism on the part of the man that didn't feel it, and I understood you to say that that was so?

2444 A. I said I agreed with him in the general idea. I don't know that I would apply the term stoicism to him.

Mr. Poste:

I said stoicism or endurance of pain.

Q. Yes. Stoicism or endurance of pain. I don't know that there is much difference between the two, as we use it, but you said you understood that was the
2445 explanation of it, that some were more stoical than others and that it didn't show any difference in the electricity; that all were equally susceptible, but some were more stoical than others?

A. All are equally susceptible to the definite results of the action of the current.

Q. How do you know; I mean, is that a demonstrated fact, or is that merely your belief?

A. Well, I know simply that the action of electricity is almost definite in quantity.

2446 Q. Now, in dealing with pains—you know that if you get two pieces of metal of the same kind and subject them to the same current they will have the same amount of susceptibility, won't they; two precisely of the same metal?

A. No susceptibility whatever. You refer to the influence of the current upon them?

Q. Yes; you know that some are more easily attracted than others?

2447 A. Yes; the metals vary.

Q. But two metals of the same kind are generally the same, aren't they?

A. Just the same, as far as the conduction of the electricity is concerned.

Q. But two men will differ in the results?

A. Not so far as the conduction is concerned.

Q. How do you know? That is what I want to know, if that is a demonstrated fact or an impression?

A. I told all I know about that some time ago.

Q. You haven't got anything to add to what you told me some time ago? 2448

A. No.

Q. Here is the point. Let us see if that is a fair summary of what you desire to say on that. You know that, so far as the signs are concerned, some men can resist an electrical shock that will seriously and powerfully affect others. You know that to be so?

A. Resist it altogether?

Q. That they won't show any particular sign of being affected by it? 2449

A. It is very seldom that we see such a variation as that.

Q. Here we do. A number of these gentlemen went to Mr. Edison's laboratory, and one felt a violent shock in his wrist and none of the others felt anything. That is in evidence in this report. Would that surprise you?

A. Yes.

2450

Mr. Poste:

My recollection is that he made a different kind of statement than that.

The Referee:

He didn't use the word "violent;" he said he had a shock; with the others it was imperceptible.

Q. Would that surprise you? 2451

A. That he felt the shock and the others felt nothing?

Q. That he felt the shock, yes; and it was imperceptible to the others?

A. It would surprise me to have anyone feel a very perceptible shock, and another one, under the same conditions, feel absolutely nothing whatever. But it would not surprise me to have one person say that he felt the shock more than another.

2452 Q. Then if you were here that day you would have been surprised. But, passing from that, it is a fact that according to your experience some persons are much more susceptible to an electrical shock than others; isn't that so?

A. Yes, so far as the objective symptoms go.

Q. That means so far as their pains go—what their feelings are?

A. So far as they show what their feelings are.

2453 Q. Now you know, on the other hand, or believe, that certain elements of the human body have varying degrees of conductivity; that you believe?

A. Yes.

Q. And, therefore, you argue from that that these men must have felt the same amount of electricity, but that some men were more indifferent to it than others; isn't that so. You have no knowledge that they felt all of it?

A. I regard all these experiments as unsatisfactory 2454 without I know exactly how much the resistance of the skin has been overcome.

Q. But, doctor, you say yourself that you have observed that men show different susceptibility—different degrees of susceptibility to this current; don't you?

A. Yes, there is a varying degree of susceptibility, to be sure.

Q. You say you believe that is caused by some being more indifferent to pain than others? 2455

A. Partly that.

Q. Don't you think it would take less of electric current to kill one of those men than the other; wouldn't his susceptibility cause him to collapse sooner?

A. I think it would practically amount to very little so far as that is concerned.

Q. That is so, and that is your best judgment? You think it would take about the same current to kill all men?

A. I think some men would be killed with less currents, undoubtedly. 2456

Q. That is what I say—that is what I asked you, and you said it would make very little difference?

A. But I said that I thought approximately the same current would kill.

Q. I don't understand exactly what you mean, doctor. You say at one time that you think the electrical current would kill—the same current—and now you say approximately the same? 2457

A. I say I think 1,000 volts would kill any man.

Q. Notwithstanding if you see a man who had taken 1,500 volts and was moving around?

A. It would convey nothing to my mind, the number of volts he said he had taken, without I know exactly how he had taken them, what the character of the electrodes was, and what the conditions were, and therefore I regard lightning strokes of no account.

Q. You say you would not be surprised if a man who received a shock got up and walked around? 2458

A. I don't say that I would not be surprised.

Q. I ask you if that would be incomprehensible and you say no?

A. I don't think it would be incomprehensible—he might be alive and apparently dead.

Q. A man might give every sign of collapse and not be dead?

A. I mean by superficial examination.

Q. No, I mean by medical examination? 2459

A. Well, it might be medical and be superficial too.

Q. Then you would attribute that to superficiality, doctor?

A. Undoubtedly.

Q. Do you think you could be positive?

A. I don't think I could be positive.

Q. You think if you pronounced a man dead you would be ready to cut him up?

A. I think if I was on my metal.

2460 Q. Are you usually on your metal, doctor?

A. I haven't anything much to do with dead men.

Q. You deal in live men?

A. Yes, sir.

Q. And those that come to you are supposed to continue to be alive?

A. Yes.

Q. They are to be congratulated?

A. Yes, sir.

2461

Re-re-direct examination by Mr. Poste:

Q. Because a person manifests a high susceptibility to pain, would you expect to find that person necessarily of a low vitality or hold on life?

A. Oh, no.

Q. Because a person manifests a sensitiveness to the electric current, in giving subjective symptoms, as you say, wouldn't you expect that person to be more easily affected by a strong current of electricity than one who didn't manifest those subjective symptoms? 2462

A. Not necessarily.

Re-re-cross-examination by Mr. Cockran:

Q. Doctor, you would say the individual that I have described here, a man having that shock—you simply say it is improbable, in your judgment? 2463

A. What shock do you refer to?

Q. A shock of 1,500 volts.

A. Oh, no; I don't say it is impossible at all. I should imagine that a person might receive a shock from a machine generating 1,500 volts and not die.

Q. Do you mean to say that it is impossible that a person could actually receive 1,500 volts into his system and drop and appear to be dead—do you mean to say that it is impossible that he should still survive—

do you mean to say that it is impossible or improbable, according to your experience? 2464

A. I mean to say that it is—

Q. You can answer me; I don't want an explanation?

A. I mean to say that it is perfectly possible for a person to receive 1,500 volts, with certain applications of the conductors, and live.

Q. Now, I will repeat my question, doctor, and I hope you will answer it. That is not my question. 2465 You will save time by answering the question exactly as it is put?

A. I know, but I can't say that because you have got to take into consideration to some extent the resistance.

Q. I ask you if it is possible for a person to receive 1,500 volts of electricity into his system, of nine and one-tenth amperes, and survive. If you say that it is impossible or improbable—which do you mean; tell us under oath? 2466

A. That question cannot be answered without explanation, it is impossible to do it.

Q. Do you mean to say that it is impossible in any aspect, or that it is improbable?

A. I mean to say that it is perfectly possible for a person to receive the current from a machine generating fifteen hundred volts and not be killed if the electrodes are not properly placed and properly prepared.

Q. Suppose they are properly placed? 2467

A. And properly prepared, he will die.

Q. Do you say that as a matter of fact, or is that simply your belief?

A. My positive opinion, sir.

Q. That is so. You are throwing Mr. Brown into convulsions of delight prematurely. He makes it a point to make manifestations here. I don't know whether it is to keep Mr. Poste in good cheer or not.

2468 Mr. Poste:

You must be susceptible to his influences.

Q. (Continuing). You say in your opinion that it is impossible. You think such a person would die?

A. Yes, in my opinion.

Q. You do not say that as a demonstrated fact, but simply as your judgment; isn't that so?

A. I cannot say that it is demonstrated on a man.

2469

HAROLD P. BROWN, recalled.

Mr. Poste:

I propose to prove seriatim everything that Mr. Brown has published in this book—the various experiments.

Mr. Cockran:

2470 Doesn't the book prove them? I don't care, only to save time.

Mr. Poste:

Will you consider that these experiments as stated in this book have been proven?

Mr. Cockran:

You mean to say that the witness will state on the stand what the book states? 2471

Mr. Poste:

Yes.

Mr. Cockran;

I will take the book as a statement of the witness. I won't say that the book is correct; you can ask him whether the book contains his experiments.

The Referee: 2472

It will be well for your purpose to show that under oath.

Direct examination by Mr. Poste:

Q. I show you a printed book, a copy of Exhibit A. Does that book contain the records of certain experiments made by you upon animals with the electric current? 2473

A. It does.

Q. On what pages?

A. The first experiments at Mr. Edison's laboratory are on page 23, beginning near the bottom of the page to page 36, ending upon the top of the page. The first day's experiments at Columbia College are described at the middle of page 36. The second day's experiments at Columbia College are described on pages 12 and 13, commencing near the middle of page 12 and ending at the bottom of page 13, and the sig- 2474 natures of the witnesses and participants of experiments in this case are copies near the bottom of page 13.

Q. Those pages to which you call attention, do they state your own minutes of those experiments or somebody else's. I want your own statements—your own descriptions?

A. The description of the Edison laboratory experiments, as referred to, was written by me. 2475

Q. What pages is that description?

A. On pages 28 to 36, and is simply a copy of the notes taken by me at the time of each experiment. The report of the second day at Columbia College, on pages 12 and 13, was written by me, compiled from minutes taken at the time of the experiments, and immediately after the experiments, consulting, on each point, especially the physiological points, the physician and gentlemen who had assisted me. The experiment

2476 described on page 36, referring to the first day at Columbia College, commencing just below the heading, "Physiological Tests with Electrical Currents," and commencing at the second word in the sixth line, reading, "the resistance of the dog at the start was 15,300 ohms," and so forth, down to the middle of the twelfth line, ending with the words, "dying without struggle," was written by me at the time. The description of the experiments made at Mr. Edison's laboratory, 2477 before the committee from the Medico-Legal Society and others, printed on pages 55, 56 and 57, beginning with the heading, "Death Current Experiments at the Edison laboratory," were written by me, and all details as to weight, resistance and instruments at the time of the contact, printed from the minutes taken at the time of each experiment.

By Mr. Cockran:

Q. Have you got those minutes?

2478 A. I have them at my house.

Q. Will you produce them here?

A. I can produce them; I cannot produce them to-day.

Mr. Cockran:

It will be time enough to-morrow.

By Mr. Poste:

2479 Q. Do those portions of that book which you have stated were written by you correctly set forth what occurred on the occasion therein mentioned?

A. They do.

(Mr. Poste states that he is not ready with any more witnesses, and asks for an adjournment until to-morrow morning.)

The Referee:

Do you desire to state your reasons?

Mr. Poste: 2480

I will state my reasons.

Mr. Cockran:

As far as I am concerned, I am ready.

The Referee:

There must be good reasons. We have been down here some time already, and this reference has been delayed long enough. 2481

Mr. Poste:

I desire to see Mr. Edison and ascertain if he will come here and testify in regard to this subject.

Mr. Cockran:

I sincerely trust that the Referee will give Mr. Poste an adjournment; I should like to see Mr. Edison here myself. 2482

Adjourned to Tuesday, July 23, 1889, at 10 o'clock A. M.

86

Feb. 25/90

Court of Appeals,

STATE OF NEW YORK.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER, *Appellant*,

AGAINST

CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN PRISON, *Respondent.*

No. 86.

RETURN ON APPEAL.

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Vol. II.

BUFFALO, N. Y.:
PRINTING HOUSE OF JAMES D. WARREN'S SONS,
Office of the "Buffalo Commercial Advertiser."
1890.

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NEW YORK, July 23, 1889. 2483

Met pursuant to adjournment.

Present, counsel as before.

THOMAS A. EDISON, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

2484

Direct examination by Mr. Poste:

Q. Mr. Edison, what is your calling—your profession?

A. Inventor.

Q. Have you devoted a good deal of attention to the subject of electricity in connection with your invention?

A. Yes, sir.

Q. How long have you been engaged in this work 2485
of inventor and electrician?

A. Twenty-six years.

Q. You are familiar with dynamos, I suppose—the various systems of dynamos?

A. Yes.

Q. Will you explain generally the difference between a continuous and alternating current of electricity, as developed by the various dynamos?

A. A continuous current is one that flows like water 2486
through a pipe. The intermittent current is the same as if the same body of water was allowed to flow for a given time through the pipe, and then the direction was reversed and it flowed in the opposite direction for a given time.

Q. Now, what kind of current is produced by the Westinghouse dynamo?

A. The reverse current—the alternating.

Q. Now, you speak of these alternations or re-

2487 versals; are they rapid or are they slow—the alternations in the operations of the dynamo?

A. I believe the Westinghouse dynamo gives alternations of current somewhere above 150 per second.

Q. 150 per second.

A. Yes, sir.

Q. Is that for the whole revolution of the armature, or for each special division of the armature?

A. The whole of the current is reversed over 150 times in a second—the same way as water flowing 2488 through say a three-inch pipe—flowing at a certain rate, and was reversed and had its direction alternated over 150 times in a second.

Q. How many kinds of dynamos are there in practical use, to your knowledge, in the United States, in the matter of electric lighting?

A. There are two types of dynamos, the alternating and continuous.

Q. Yes, but how many different makes or patterns?

2489 A. I should say there must be as many as twenty.

Q. Mr. Edison, have you made observations and been cognizant of experiments upon the subject of the resistance of the human body to electrical currents?

A. Yes, sir; I have been present while the measurements have been made by my assistants.

Q. What is your opinion of the reliability of the Wheatstone bridge as a means of measuring the resistance of bodies?

2490 A. It is an absolute measurement, probably more accurate than a foot-rule.

Q. Now, will you state generally, without going into minute details, the result of your observations and experiments as to the subject of the resistance of the human body?

A. A few days ago they measured 250 and some odd persons to ascertain their resistance. I have the results here—they will be here in a little while.

Q. Can you state generally what the results were?

A. They were—the voltage of the 250 odd persons 2491 —about 1,000 ohms.

Q. About 1,000 ohms.

A. Yes, sir.

Q. Do you remember the largest variation either way as indicated by those experiments?

A. My impression is that one reached as high as 1,800 and the other went down as low as 660.

Q. Will you describe the method of the application of your test—of those tests?

2492

A. We took two jars—crockery jars—about seven inches in diameter and about ten inches high, and put in each jar a plate of copper; and into the jar we put the water with a ten per cent. solution of caustic potash —the caustic potash being used to saponify the grease on the hand, so as to make a perfect contact. The potash saponifies the grease—makes a soluble soap, and that makes a perfect contact. The parties to be measured put their hands in the liquid so that the end of their fingers touched the bottom of the jar, and after waiting 2493 thirty seconds the measurement was taken. The measurement was found to be independent of the volts up to the point that we used, whether one volt or eight volts. At eight volts, with a continuous current every time, we would break it; it would give such a shock that a great many of the men could hardly stand it, so we could not go above eight volts.

Q. Then is it your opinion that the resistance—that high figures that are obtained by some experiments 2494 upon the subject of the resistance of the human body, are legally due to imperfect contact of the electrodes?

A. Yes—we—my assistant will be here this morning. He has made experiments on all the contacts that we read about, such as touching the fingers and touching the back of the hand—the different processes, different individuals—through the soles of the feet; and under those conditions there are enormous variaions, from 200 ohms to 20,000 ohms.

2495 Q. Then the elements that enter into the test, and which indicate imperfect contacts, always produce high figures?

A. Yes, sir; the tendency is always toward a high figure.

Q. Well, then, is it your opinion that the condition of the skin, as to oil upon it, or dirt, affects the measurements?

A. Yes; and as to whether it is warm. In a hard-working man there is more resistance than in a person who does not work. 2496

Q. These persons upon whom your experiments were made, who were they?

A. They were assistants in the laboratory—clerks and neighbors and workmen in the factory—all conditions.

Q. Now, aside from—leaving out of consideration this saponifying substance that you have mentioned, what effect upon the test to ascertain in the resistance does the size of the electrode have? 2497

A. After the contact the diminution of resistance is about proportional to the surface.

Q. The surface covered by the electrode?

A. The surface covered by the electrode.

Q. Where, in your opinion, is the major part of the resistance of the human body located?

A. In the human body?

Q. Yes; but the major part of the resistance in the whole body, where should you say, in your opinion, that it was located? 2498

A. It is not at the contact in potash, but it is through the arms and across from one arm to the other.

Q. Then, when the contact is perfect at the skin you think the resistance is fairly distributed throughout the body?

A. It takes the route of the lowest resistance, and it is distributed in proportion to the resistance from arm to arm.

Q. I hardly think you understand my question. 2499 Probably I do not make myself clear. If you are making experiments to determine the resistance of a given person, you find that the resistance is so much. You have made an experiment with the use of this potash that you have mentioned. Now, have you any opinion as to where and how that aggregate of resistance is distributed through the body?

A. I should say about the potash that 15 per cent. is at the contact and the balance is in the body. 2500

Q. What is the law that governs the electrical current, or the passage of the electrical current, where several paths are offered to it of varying resistance?

A. It divides in proportion to the resistance.

Q. It divides in proportion to the resistance?

A. Yes, sir.

Q. Well, if a path of very high resistance is offered, and one of low resistance, what path would it follow?

A. It would follow both paths if there was plenty 2501 of current behind it.

Q. But the usual law is, it follows the best conductors, I suppose, proportionately to the conductivity?

A. Proportionately to the best conductor, yes.

Q. Mr. Edison, will you please explain the burning effects that are sometimes produced in case of contact of a person with an electric wire?

A. It is due to the bad contact and the great resistance of pressure between the flesh and the wire—electrical pressure. 2502

Q. What do you understand by the word arc?

A. It is electricity flowing through gaseous matter between conductors which are not connected—where the ends are separated.

Q. Then, is there ever an arc produced when the contact is perfect?

A. No.

Q. Is not the fact that burns are caused in a given

2503 case of contact of a man and conductor of the current conclusive evidence to your mind that in that case the contact is imperfect?

A. That is the evidence—bad contact.

Q. When the contact is imperfect, what effect does that have to the resistance offered to the passage of the current?

A. Very high resistance, very little current gets through, and what current passes through the most of it is obstructed at the point by bad contact. 2504

Q. You are familiar with the Westinghouse dynamo, are you not?

A. No.

Q. You have knowledge as to the manner of its construction?

A. General only.

Q. You have seen Westinghouse dynamos, I suppose, have you not?

A. Yes.

2505 Q. Has Harold P. Brown any business connection with yourself or the Edison Company?

A. Not that I know of.

Q. Take the case of a separately excited dynamo. What is your opinion upon this question? May the voltage of such a dynamo be increased by accelerating the revolutions of the armature?

A. Yes.

Q. Now, to what extent may this be done without danger of destruction to the machine from centrifugal force? 2506

A. It depends upon the factor of safety in constructing the machine.

Q. What do you mean by that—the factor of safety?

A. You can keep increasing the speed and increasing the pressure in proportion to the increase of speed, but you soon reach a point where the machine will fly apart by centrifugal force.

Mr. Cockran: 2507

Fly apart you say.

The Witness:

Yes, fly apart.

Q. Can you give us any approximate figures as to the limits which can be safely reached?

A. All machines should be constructed to run at least three times as fast as what they are sold for. 2508

Q. Now, may the voltage of an alternating dynamo, if properly constructed, be increased by increasing the amount of the current flowing from the exciting dynamo?

A. Yes.

Q. If the dynamo be properly constructed, to what extent may that exciting current be increased without danger of burning out the insulation?

A. In a properly constructed dynamo the field magnets are never saturated, and therefore the voltage could be increased considerably by increasing the strength of the current from the exciting dynamo; but in a great many cheaper classes of dynamos they work right up to the very mark. I don't think that very much could be gained this way on a Westinghouse machine. 2509

Q. Does the Edison Company own patents for a system of distribution of an alternating electrical current? 2510

A. Yes, sir.

Q. What is the name of that patent?

A. Cippernowski.

Q. It is in extensive use?

A. In Europe.

Q. Why don't you use it in this country, Mr. Edison?

A. I don't like to.

Q. How is that?

2511 A. I don't like to.

Q. Do you think it is dangerous?

A. Yes.

Q. Now, Mr. Edison, in your opinion, can an electrical current be applied to the human body by artificial means in such a manner as to produce death in every case?

A. Yes, sir.

Q. Instant death?

2512 A. Yes, sir.

Q. Painless?

A. Yes, sir.

Q. What form of electrodes would you advise in the application of the current in criminal executions?

A. Put the criminal's hands in a couple of jars of water—with a solution of potash.

Q. What amount of electrical energy do you think would be sufficient to produce instant, painless, death in all cases?

2513 A. One thousand volts.

Q. One thousand volts?

A. Yes, sir.

Q. And 1,000 volts in every case—

A. Yes.

Q. That answers it?

A. Yes.

Q. Do you think that result would be reached, whatever form of current you used, with one thousand volts?

2514 A. No.

Q. What form of current would you use, having a pressure of one thousand volts, to produce death?

A. I would either use an alternating current or a continuous current that .was very much broken up—very much interrupted.

Q. Very much interrupted. How could that interruption be produced?

A. Well, by mechanical means.

Q. Now, Mr. Edison, will you state your reasons for advising the use of the alternating current—or of a continuous current continually interrupted? 2515

A. The perfectly continuous current don't seem to have much effect upon the nerves; for instance, over there yesterday, you take eight volts and you could not feel it, whereas by taking an alternating current of three volts it was about as much as you could stand.

Q. Have you made experiments, Mr. Edison, to ascertain the effect produced upon muscular tissues, or muscles, by the application of an electrical current? 2516

A. Yes, with a galvanoscope frog.

Q. State what you observed?

Mr. Cockran:

Galvanoscopic frog, did you say?

Mr. Poste:

Yes, galvanoscopic frog.

2517

A. Dr. Beard, who is now dead, at one time prepared a frog's leg, laying bare the sciatic nerve, and he tried a number of experiments on it, and I took one of the frog's legs and put a little piece of platina on it and connected it to a wire running from Washington to New York. With the means of a point and a sounder I took all the messages off between New York and Washington with a jump of the frog, every time the current would pass over him—a dot or a dash— 2518 very violent contortions, just on the opening and closing of the current.

Q. That opening and closing of the current produced an alternating or an intermittent current?

A. Intermittent current.

Q. Then it is your opinion that a very rapidly alternating current would produce, at each alternation, such an effect as you have described upon the human muscles?

2519 A. Yes, sir; it requires an interruption of alternations to produce that effect.

Q. Could you estimate the amount of current that you used in making that experiment upon the frog?

A. I used—I put a fraction of the current from Washington, I should say, about one 500-1000th part of an ampere.

Q. Well, did you make any calculation for the purpose of ascertaining the muscular effect as against
2520 gravity, we will say, that was produced by these contractions?

A. I thought it was very strange that such a small amount of current would produce such a large amount of work, and after some time I found that the work was not in the current, but the work was in the frog itself, and that the current simply opened and closed the valve, so to speak, and that the frog did his own work. I thought I was getting a great deal of work for a very small amount of current.

2521 Q. Will you please tell us just what you mean by a galvanoscopic frog?

A. Those frogs which had their legs cut off and laid bare—the skin somewhat stripped off—so as to lay the sciatic nerve bare, are called so, because Galvanni was the first one to discover electricity by the twitching of these frogs, touching the sciatic nerve with a piece of metal, and they are called galvanoscopic frogs.

Q. Then these experiments were on the hind legs
2522 of a frog?

A. Yes, French frog.

Q. How much weight did you observe or did you estimate was lifted by each one of these contractions in those cases?

A. In some of the experiments, the work—I should estimate, it would be from a third to one-half an ounce of work—a quarter of an inch to half an inch high.

Q. Within one 500-1000th of an ampere?

A. Yes, sir.

Q. Now, Mr. Edison, will you give us your opinion as the result of your observations, studies and experience as to the mechanical effect produced upon human muscles by the application of a powerful alternating current? 2523

A. I don't know very much about that part of it, except I know of one fact, that animal tissue or membrane being porous—that when you divide a cell, for instance, with an animal membrane, and pass a current through the water, on closing the current a powerful rush of water takes place through the capillary pores 2524 of the membrane but in one direction, and if you reverse the current it goes in the other direction, and I have made a telephone on that principle that you can hear two or three hundred feet away—on that principle. It is called an electro-osmose. Its peculiar construction is of fine capillary pores of tissue of animals, and it is very powerful.

Q. Then, when the current is setting in one direction, what effect is produced? 2525

A. It tends to force the water through all the pores of the tissues.

Q. And when the current starts in another direction?

A. Forces it the other way.

Q. What mechanical effect would this operation that you have described produce upon the muscles; can you describe that any further than you have already said?

2526 A. The mechanical effect is that the water on one side of the jar rises and in the other side it lowers if you pass the current in one direction, or it will keep constant if you alternate it. I should suppose that a current passing through the human body would cause the whole of the fluids to suddenly pass through all the tissue—strike a kind of a blow.

Q. Well, in your opinion, would that result in contraction or contortion of the muscles with each alternation?

2527 A. No, I think that is due to the nerves; I really don't know much about that.

Q. I was asking you for the mechanical effects in your opinion. Now, Mr. Edison, will you give us some facts upon the subject of electrical energy. Do volts simply constitute electrical energy?

A. Well, volts are the—for instance, we have a water-tower on a bluff 100 feet high. The water dropped down to the bottom, 100 feet; the distance in drops is called the volts or pressure of the water. Now, 2528 the amount of water is called the ampere.

Q. Then the whole energy—the whole electrical power—energy—is a compound or product of volts and ampere, is it?

A. Yes.

By the Referee:

Q. When you say energy you mean the work it will do? 2529

A. Yes, the work performed.

By Mr. Poste:

Q. Mr. Edison, the passage of a current of electricity through a resistance or through a conductor produces heat, I suppose?

A. Yes, sir.

Q. Now, in passing a current that would produce death to a human body, how, in your opinion, would 2530 the heat generated be distributed?

A. It would be radiated off from the body.

Q. Entirely, do you think?

A. No; the temperature of the body would rise.

Q. Well, how would that rise be indicated. Would it be proportional. Would it be practically uniform throughout the body, in your opinion?

A. No, I think not; it would be at the points of difference in resistance.

Q. It would be distributed according to the varying resistances of different parts of the body? 2531

A. Yes.

Q. Now, a witness has testified, Mr. Edison—Mr. Pope, a witness for Kemmler, has testified that a sufficient current would carbonize a man's body from one end to the other—burn it to a crisp, and that probably the point of contact of the electrodes would be heated to a heat equal to boiling water, and that the surface would be burned away, and the heat would continue on down as a new surface was presented. 2532
Now, what is your opinion as to the possibility of the production of any such result as that in the case of proper electrodes?

A. I don't understand that. I don't understand how that would be possible.

Q. Well, it is your opinion that if an electrical energy such as you have described as proper to be used in cases of execution, was applied with electrodes such as you have described, or other proper electrodes, 2533
that death would be instantaneous, and, therefore, no heating effect would be probable or possible?

A. Very little heating effect. For instance, after measuring these men we got a large glass tube about the height of the man, and made the resistance about the same, and we passed 1,200—no, 1,300—volts through the liquid, and we found after one minute that the rise of temperature was eight or nine degrees centigrades, so that it is a very quiet affair. 2534

Q. That is after the application of that current?

A. For a minute after, the rise of the temperature—the rise of the whole was nine degrees centigrade.

By the Referee:

Q. What was the resistance of the water?

A. I think it was eight hundred ohms—of the tube.

2535 Mr. Cockran:

Resistance of what water.

The Referee:

The water that he passed it through.

By Mr. Poste:

Q. Mr. Edison, are there any other facts than those which you have already stated which you have considered as the basis, or part of the basis, of your opinion that one thousand volts, properly applied, will produce instant death—any other facts than those which you have already stated? 2536

A. No, it is an idea that I have got from reading accounts of the death of a great many people, and seeing experiments in the laboratory. I have come to the conclusion that there is no doubt but what one thousand volts of current will be instantaneous and painless. 2537

Q. What experiments have you observed in your laboratory bearing upon that question?

A. Only of horses and dogs.

Q. The experiments made by Mr. Brown and Mr. Kennelly?

A. Some of them; I only saw one or two.

Q. Can you describe briefly those experiments?

A. I prefer to let Mr. Kennelly do that.

2538

Cross-examination by Mr. Cockran:

Q. Mr. Edison, you have described the experiments which were made to ascertain the capacity—you have described to Mr. Post some experiments that you made in ascertaining the capacity of the Wheatstone bridge, to register the resistance of the human body?

A. Yes, sir.

Q. When were those made?

A. Day before yesterday, I think. 2539

Q. Were they the first you ever made of that kind?

A. No, I have made them at times before.

Q. When?

A. Oh, at least 10 or 15 years ago, but only once or twice.

Q. You never set out to definitely ascertain it?

A. No, sir.

Q. How did you come to do it day before yesterday? You remember that was Sunday? 2540

A. I remember reading in the newspapers some medical reports of experts.

Q. That was your first attempt to solve the question?

Q. No, I generally knew that the resistance was the way I have measured before.

Q. You mean to say that the resistance of men are about the same—that the resistance of all men are about the same?

A. No, in the water conductors they are pretty close though. 2541

Q. They are pretty close?

A. Yes, sir.

Q. Now, I understand you to testify here that they ran from 600 to 1,800?

A. Yes, sir; that is very close.

Q. One would' have three times the resistance of the other?

A. That does not matter. 2542

Q. When you come to electrical matters a variation of that kind is infinitesimal?

A. Of course you are going to put three or four times as much current to the man to knock him.

Q. Then you made your experiments with regard to this attempt to kill him and to ascertain generally what the resistance was, but simply to ascertain with reference to that one particular subject?

A. Ascertain with reference to its cause.

2543 Q. In other words, to prepare yourself for having that matter turned out in this case?

A. To be able to answer questions based on knowledge.

Q. Now, Mr. Edison, do you know whether the human body is what you might call an equal conductor, or are there various elements of conductivity in the human body?

A. It is generally about the same, I should judge, in every person.

2544 Q. Are you a pathologist, Mr. Edison?

A. No, sir.

Q. Do you understand anything about anatomy?

A. No, sir.

Q. You do not regard that as a feature of your electrical education?

A. No, sir.

Q. I asked you that question because Mr. Gerry undertook to say that they were features of your electrical research, and I thought I would put the question to yourself? 2545

A. Yes, sir.

Q. You do not claim to understand anything about the structure of the human body?

A. No, sir; only generally.

Q. That is, you know we all have got arms and legs—you mean you have got an idea?

A. Got a good idea of what is inside of us.

2546 Q. You could not tell, for instance, whether the blood was a better conductor than the muscles, the muscular tissues?

A. I should say it was.

Q. You do not know that? You simply say that as a belief?

A. I would have to try the experiments to be absolutely certain.

Q. Now, you do not even know what the component parts of the human blood are, do you?

A. Pretty near. 2547

Q. What are they?

A. Carbon, hydrogen, oxygen and nitrogen.

Q. Now you have mentioned pretty much every gas, haven't you?

A. I cannot help it; that answers the question.

Q. There is a little of each of these, but do you know the proportions?

A. We will assume that I do not know anything about it; go ahead. 2548

Q. Mr. Edison, don't let me assume what is not a fact. Tell me whether it is so or not?

A. To save argument, I will assume it.

Q. You must not make an assumption to save argument; you must tell the fact. You cannot make an assumption to save argument at all; but, as a matter of fact, do you know anything about what the component parts of the human body are?

A. I know generally.

Q. So that you could testify under oath and give us them? 2549

A. I have never made the analysis.

Q. You have a general opinion, though, that the blood is a superior conductor to the muscular tissues?

A. Yes, sir.

Q. And is not the muscular tissues in some parts of the body of superior conductivity to the muscular tissues on other parts?

A. It depends upon the amount of liquid in it. 2550

Q. That was not my question; assuming that if it is not a fact that the conductivity of the muscular tissues in some parts of the body is superior to the conductivity of the muscular tissues in other parts?

A. The conductivity of the muscular tissues would be, in my opinion, dependent upon the amount of moisture in it, and of course some muscles probably have less moistening. I suppose, therefore, those that have most moistening would be the best conductors;

2551 that is, assuming that some have a greater degree of moisture than others; those that have the most moisture in them would be the best conductors?

A. Yes, sir.

Q. That is as much as you would care to say?

A. Yes, sir.

Q. You do not undertake to say, of your own knowledge, whether any, as a matter of fact, have a greater degree of moisture?

2552 A. No, I know nothing about it.

Q. Do you know anything about the conductivity of the brain, for instance?

A. No, sir.

Q. It is your general belief, however, that there are elements of varying degrees of conductivity in the human body—the structure of the human body?

A. Yes.

Q. Now, Mr. Edison, suppose I were to give you a lump of clay—a piece of earth, with various metals in

2553 it—a heterogeneous collection of metals, and I gave you that to test the resistance of the clay by the Wheatstone bridge; could you do it?

A. Yes?

Q. Notwithstanding the heterogeneous collection of metals in it?

A. Yes?

Q. How could you do that thing?

A. I would simply measure the resistance.

2554 Q. Would you have the resistance of the clay, then, or the resistance of the metal?

A. I would measure the resistance of the whole—the clay moistened.

Q. Would you then be able to tell me what the resistance of the clay was by your Wheatstone bridge?

A. I could simply give you the resistance of the moisture in the clay, because the clay is not a conductor.

Q. Would you be able to give me the resistance of the moisture without the metals?

A. I think that question is nonsense. 2555

Q. Mr. Edison, it may be nonsense, and yet we must press you for an answer, if it is possible to give an answer to it.

A. No, it is not, because I think it is nonsense to me; it may not be to you.

Q. I understand that. Let me see if we cannot understand this?

A. Use some other way of illustration.

Q. No, I will have to use that until I get an answer. 2556 Now, I give you a piece of clay—

A. Pure clay?

Q. No; you did not let me finish. I give you a piece of clay through which there are distributed metallic substances of varying degrees of resistance, and if I ask you to give me the resistance of the clay, that, you say, would mean the resistance of the moisture in the clay? I ask you whether it would be possible to determine that by the Wheatstone bridge?

A. I could ascertain the resistance of the whole. 2557

Q. I understand that; but would you be able to measure the resistance of the moisture in it of the clay?

A. Yes; it would measure the resistance of the moisture in the whole thing.

Q. Would that result—wouldn't that give you the resistance partly of the metals and partly of the moisture, if you measured the whole thing in a Wheatstone bridge or by the Wheatstone bridge?

A. For instance, I cannot give you the resistance 2558 of a piece of zinc an inch square in a block of iron a mile square, because I could not get in there.

Q. I do not ask you to do anything as hard as that.

A. That is about it.

Q. I give you a piece of clay, which you can take up in both hands; of course, I suppose you could cover several miles with your intellect, but with your hands you could cover only a few inches.

2559 A. Ask me about that piece of clay and, electrically speaking, I will give it to you.

Q. That is to say, you would give me the resistance of it, the mean resistance of the metal and all?

A. Yes, sir.

Q. That is what you would be compelled to give, and you could give me no other result?

A. Yes, sir.

Q. Mr. Edison, this obtaining the resistance of the human body is simply a matter of experiment for the 2560 present—the Wheatstone bridge was never intended to measure the resistance of human bodies?

A. Well, it was designed to measure everything.

Q. Wasn't it designed to measure resistance of metals particularly, and things that are in use in the electrical business?

A. It is an absolute means of measuring electrical resistances independent of what they are.

Q. And they can tell you measurements accurately, 2561 even though there should be several kinds of conductivity in the several parts of the body?

A. Yes, sir.

Q. Did you ever know it to be applied to a human body until these experiments were made?

A. I have done it myself.

Q. Until these experiments were made?

A. Yes, before these.

Q. When?

2562 A. At times, as I have previously stated.

Q. Have you found that the resistance was shown to be the same every day?

A. No.

Q. Then the resistance varied?

A. I did not measure the man twice; after I had measured him once I did not measure him again to find out.

Q. So that you are not able to say that?

A. I did not say so.

Q. I know you did not; I am asking your knowledge, so as to make that clear. 2563

A. I do not know, because I did not measure him again.

Q. Now, when you took those 250 men that you put through, shall I say a course of sprouts, yesterday—did you measure any one of them twice, or did you take each one's measure and pass him away?

A. No, sir; I did not take it twice; that can be done, though. 2564

Q. Now, are you sure it can be done, and a gentleman put through the test a second time; that his resistance would be the same?

A. I think it would be very close.

Q. You think so, but you have not tried the experiments?

A. We will try it to-morrow.

Q. That would be very kind of you, but I am asking from your present knowledge.

A. I do not know. 2565

Q. We will take a promise of that, but we will not take any information on it. Now, you have told us about a telephone that you have invented, Mr. Edison, where you used some animal tissue?

A. No; I used chalk.

Q. I thought you said you constructed a telephone in which you made use of animal tissue?

A. I did, but I used regular chalk, because I got the pores just as fine by hydraulic pressure. 2566

Q. What kind of animal tissues did you use?

A. A bladder.

Q. Was it the bladder of any particular animal?

A. No.

Q. You had no choice in that matter?

A. No. Almost all animal tissues seem to work.

Q. And you watched the effect on those animal tissues of this electrical current, and got the results which you described to Mr. Poste?

2567 A. Yes, worked the telephone by the passage of the moisture through the capillary pores of the material.

Q. This was after the death of the animal, I suppose? You did not use his bladder while he was alive?

A. Oh, long after.

Q. You are not aware whether the conditions—that the conditions were the same after the animal's death
2568 as before, during his lifetime; I mean whether the electrical influence would be precisely the same?

A. No; that I do not know.

Q. That you do not know?

A. That I do not know.

Q. Now, you told Mr. Poste that you believed, from all that you had seen, that where a burn occurs from contact with an electrode it comes from imperfect contact?

A. Yes, sir.

2569 Q. And you think that if there was a complete and perfect contact there would not be any burning?

A. No, sir; not at the point of contact.

Q. Would there be anywhere else, Mr. Edison?

A. You might put several thousand horse-power in a man and burn him up.

Q. That is what we were talking about. When you say you would burn him up, do you mean that you would have a bonfire with him?

2570 A. No, carbonize him.

Q. Carbonize him? Exactly. Now, Mr. Pope testified that you could carbonize him by a current sufficiently strong, and you agree with that, except you differ as to the amount that would be necessary for it?

A. Yes, sir.

Q. You think that several thousand horse-power would be necessary?

A. I think you might burn him up with about 1,500 horse-power.

Q. Well, then, you would burn him up quick? 2571

A. Carbonize him.

Q. Right away?

A. Instantly.

Q. Now, supposing you took a different current—suppose you took this wicked Westinghouse current, the one that is going to be used on Kemmler, and you kept it up long enough, what condition would you get Kemmler in—suppose you kept it up for five or six minutes with 1,500 volts—with the extra exciting 2572 dynamo working, and all other appliances that would get it in its most wicked and aggravating form—how long would it take before you would get him to feel the heat?

A. I think his temperature might rise up about four or five degrees above normal, and continue there until he was mummified; until the water had all been evaporated out of him.

Q. That is a new term. You think Kemmler would not be carbonized, but mummified? 2573

A. Mummified.

Mr. Cockran:

You see, there are new possibilities in this concern.

The Referee:

He said he thought it would get the water all out of him.

2574

Q. Will you explain how the man would be mummified?

A. The water would be gradually evaporated away.

Q. Would it penetrate through the pores of the skin?

A. Yes; his temperature would rise.

Q. It would be like the man with the broken ear that Edward About writes about—all the water taken out of him—he would be dessicated?

2575 A. Electrically dessicated.

Q. Now, Mr. Edison, will you tell me how many degrees Fahrenheit nine degrees centigrade would be?

A. I do not know.

Q. Have you ever made a comparison?

A. I have had some: I did not bother: ask a man—

Q. Mr. Brown?

A. He probably knows it.

2576 Mr. Cockran:

Could you tell us, Mr. Brown?

The Witness (To Mr. Kennelly):

Do you know, Kennelly?

Mr. Kennelly:

Sixteen.

2577 Q. You vouch for his accuracy?

A. Yes, sir.

Q. He is, so to speak, your walking table?

A. Yes, sir.

Q. Now, you were asked what current would be necessary to kill Mr. Kemmler, or anybody else, and you said about 1,000 volts. Now, does that mean any thing—that answer.

A. Yes, sir, it does.

2578 Q. Now, cannot you give a man 1,000 volts so that he would hardly feel it?

A. Of alternating current?

Q. Of any current—of any electrical current?

A. I do not know how it can be done.

Q. When you speak of the amount of volts that are necessary, would that convey anything in the absence of telling how many amperes were in use—unless you mention the number of amperes—have you got any idea of the electrical—

A. I am assuming that 4,000 volts, with the known conductivity of the human body—you would get a certain number of amperes—I am not speaking of volts alone. 2579

Q. You understand it, but we do not. Our minds are not as brilliant on that as yours. Now, what number of amperes would be necessary to make that 1,000 volts a success?

A. With the average resistance of the body a thousand volts would give about an ampere, and I think that is about ten times more than is necessary. 2580

Q. You think that it would be ten times more than would be necessary for anybody?

A. Yes, sir.

Q. Any man that would need more than one-tenth of an ampere—

A. (Interrupting.) Would be mean.

Q. Mean—rapacious?

A. Yes, sir.

Q. How do you measure voltage, Mr. Edison? 2581

A. Alernating voltage with a Cardew voltmeter.

Q. What is that?

A. A little piece of platinum wire, that when the current passes through it it gets hot and expands, and that indicates the voltage by previous marking on the circle.

Q. Well, that would be only in the one current—that would not apply to any other current?

A. Yes, sir. 2582

Q. Could you measure your current?

A. Yes.

Q. Continuous current, I believe is yours?

A. Yes, sir.

Q. Isn't there a voltmeter invented by Sir William Thompson that is more reliable than any of these—isn't that the standard voltmeter?

A. No, there are a great many voltmeters, but the Cardew seems to be the best for alternating.

2583 Q. Do you know of Sir William Thompson's voltmeter?

A. I have read about it, I think I have one. Have we, Mr. Kennelly?

Mr. Kennelly:

No, sir.

The Witness:

2584 No, sir; we have not.

Q. Now, Mr. Edison, do you think you could measure the internal resistance of a battery with the Wheatstone bridge?

A. I never did it, but the—

Q. If you don't know any thing about it, just tell us so.

A. They generally do it with the Wheatstone bridge.

2585 Q. How do you know, Mr. Edison?

A. I have seen them do it.

Q. Have you ever assisted at it?

A. No.

Q. Now, Mr. Edison, do you know Mr. Brown pretty well?

A. Fairly well. I have seen him about a dozen times.

Q. Is that all? Did you ever give him a letter of recommendation to any body?

2586 A. I don't remember one.

Q. Do you know Mr. Lathrop, the Superintendent of State Prisons in this State?

A. I do not think so.

Q. Did he ever apply to you, or any body in his behalf apply to you, to furnish a man who would conduct executions with neatness, skill and despatch?

A. I do not remember any such man. He might have been down to the laboratory.

Q. Did you ever give Mr. Brown a letter of recommendation recommending him as a person who could meet these requirements, to any body? To Mr. Gerry or to Mr. Lathrop or to anybody else? 2587

A. I don't remember it if I did.

Q. Have you ever given any jobs of any kind to Mr. Brown?

A. No, sir.

Q. Are you sure of that?

A. I don't remember of any.

2588 Q. Mr. Edison, do you remember writing a letter to a Mr. Johnson early this year, concerning Mr. Brown, at all?

A. No, sir. I have written a great many letters to Mr. Johnson, but I do not know whether I wrote in reference to Mr. Brown.

Q. Did you ever write a letter to Mr. Johnson in which the following language occurred: I will give it: "It would be a good job upon which to put Brown to work?" 2589

A. I do not remember it.

Q. Where had you ever seen Brown before this five or six times you speak of? When did you first become aware of his existence?

A. I think the first time I saw him, he came out there about this very business; to Orange.

Q. And was he a stranger to you then?

A. I think so; I do not think I had ever seen him before.

2590 Q. Did he come up there and ask you to let him have your laboratory for the purpose of killing dogs?

A. He wanted to try some experiments.

Q. Are you in the habit of giving your laboratory to everybody that asks you?

A. Yes; sometimes I let them experiment there.

Q. Might I entertain the hope that I might be allowed myself to go there?

A. Yes, sir; you can come at any time; I will be glad to see you.

2591 Q. Mr. Brown evidently commended himself to your approval during these experiments?

A. He seemed to be a pretty nice kind of fellow, and it was no trouble to me, and I let him do it.

Q. Do you know where he got his dogs from?

A. No; I think he bought them somewhere.

Q. You do not know where he got the calves from?

A. He bought them from some butcher, I presume.

Q Do you know where he got the horses from?

2592 A. I do not know where he got them; Mr. Kennelly and Brown got them.

Q. Mr. Kennelly is your superintendent?

A. Mr. Kennelly is an electrician of mine.

Q. Now, Mr. Edison, there is a great degree of feeling between you and Mr. Westinghouse?

A. I do not dislike Mr. Westinghouse.

Q. There is a contest between you in the courts, isn't there?

A. Yes, sir.

2593 Q. And in relation to some of these electric-light inventions?

A. Yes, sir.

Q. In your answer to Mr. Poste, you said that from a great many things which you had seen and which you had heard of men dying from contact with wires, you come to the conclusion that death could be inflicted; am I right in that?

A. Yes, sir.

2594 Q. That is the extent of your knowledge?

A. Yes, sir.

Q. You never tried any experiments upon human beings?

A. Not on a man.

Q. Now, did you ever see all those persons that were killed?

A. No, sir.

Q. Did you ever see any of them?

A. No, sir; I merely read of them.

Q. You did not know that they were killed? 2595

A. I read electric papers detailing the circumstances, and suppose they were correct.

Q. From your own knowledge and from your own observation, you never saw a person who had been killed by this current?

A. No, sir.

Q. You never examined it, and you are not in a position to say that elements in the human body are affected in order to produce death? 2596

A. No, sir.

Q. You simply have a general impression about it?

A. I have read of most of the accidents, and I have got my idea of them.

Q. So that I am entirely within the bounds of reason and correctness when I say that this is an impression or belief that you have formed; a belief and a deduction of yours, not a demonstrated fact?

A. No, it is a belief and a deduction.

Q. Of course there are some things that you have 2597 demonstrated yourself for which civilization at large is grateful to you. Those are demonstrations. You would not regard this question of killing a man of that character. One is a belief, and the other is a demonstration. I am right about that; am I not?

A. Of course it is not an actual demonstration. No, sir; because the State has never killed anybody yet.

Q. But it is a strong belief? 2598

A. Very strong.

By the Referee:

Q. Let me ask you a question, Mr. Edison: These machines that produce the alternating current, how large is the largest of them that you know of?

A. I am not familiar with them.

Mr. Cockran:

He said he never saw one.

2599 The Witness:

Any kind. How large a machine could be produced in power—in volts? How large a machine could be made?

A. One million volts.

Q. Practically I mean?

A. They have them in England, I believe, with 10,000 volts, and 5,000 horse-power, with a wheel twenty feet in diameter.

2600 Q. Now, could you hitch together, to use a common expression, two or more machines, and thus increase the voltage?

A. You can take two Westinghouse machines of one thousand volts and put them in tandem.

By Mr. Cockran:

Q. Do you know that?

2601 A. I am not sure of that.

By the Referee:

Q. From what you know of alternating machines, could they be hitched together and put on the same wire—on the same circuit?

A. For commercial purposes I do not think it would be a good thing, but for this purpose there would be no trouble.

2602 Q. Is there anything in the present known state of the science of the insulation of wires that would prevent that from being done with safety to those that were handling it?

A. No, perfectly safe; if you are careful.

Q. So that if you wanted to put two thousand volts—for instance, if the superintendent wanted to put two thousand volts instead of one thousand on the subject he could do it with safety?

A. Yes, sir.

By Mr. Cockran: 2603

Q. That is, you believe he can; you do not know anything about it?

A. Of course I have got to testify to my belief, because I have not killed anybody yet.

Q. You have not seen those experiments?

A. No.

Q. I want to ask you now, for the purpose of explaining that, whether you are speaking from a belief or from knowledge on the subject. By knowledge I mean a personal knowledge, gathered by your own observation and experience? 2604

A. I am speaking, as far as the alternating current is concerned, from belief.

Q. Now, Mr. Edison, you state that it would be possible to run the wheel of one of these machines three times stronger than its usual rate of revolutions. Didn't you say that to Mr. Poste?

A. Yes; I say it would be— 2605

Q. (Interrupting.) Assuming that a wheel was making 1,600 revolutions to the minute—1,650 to the minute, do you think it would be safe to start it up to five thousand?

A. If the machine is made properly I think it might.

Q. You would not like to be around when it was running at five thousand?

A. No.

Q. Neither would I. 2606

A. No.

Q. Now, as to what you have testified to the Referee, I understood you to say that you testified there, as far as this alternating current was concerned, and the Westinghouse dynamos, that you were testifying entirely from hearsay?

A. From belief and knowledge.

Q. When you say knowledge, do you mean personal knowledge?

2607 A. Not of the dynamo, no—not of the particular dynamo.

Q. What do you mean when you say knowledge?

A. Knowledge from knowledge of the business. I have an alternating dynamo out at the laboratory myself.

Q. Have you got a knowledge of the capacity of hitching two of them together, whether the wire would support the current?

2608 A. I know it from people who have seen it.

Q. No, that is not it, Mr. Edison. You told us you heard it, but it is necessary for me to ask you the question, so that it will go on the record, exactly what you mean by knowledge?

A. Go ahead.

Q. Whether your knowledge is based upon information received from others, or from personal knowledge received from your own examination of the subject?

2609 A. What I have testified in regard to the Westinghouse machine is all belief.

Re-direct examination by Mr. Poste:

Q. Would there be any practical difficulty in connecting two or more alternating dynamos by gear-wheels and bolts, so as to run them in series?

A. No, especially with gear-wheels.

2610 Q. Mr. Edison, take a certain man, a given man in any particular case to apply the current to him from one dynamo and then from another. The first dynamo has a current capacity of 37 amperes, the second has a current capacity of 125, the voltage of each dynamo is the same. Now, would he receive any more electrical energy in one case than the other?

A. No, the same thing.

ARTHUR EDWIN KENNELLY, called as a witness on 2611 behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

Q. Mr. Kennelly, what is your occupation?

A. Electrician to Mr. Edison.

Q. How many electricians has he got?

A. Two or three. 2612

Q. How long have you been an electrician?

A. Ten years.

Q. Have you been actively engaged in that business for that period?

A. During all that time.

Q. How long a time have you been in Mr. Edison's laboratory as electrician?

A. Eleven months.

Q. Have you recently, or have you during your experience as an electrician, made measurements for the 2613 purpose of obtaining figures on the resistance of the human body?

A. I have.

Q. Have you recently made such experiments?

A. Yes, sir.

Q. Where?

A. At Mr. Edison's laboratory.

Q. When.

A. On Thursday and Saturday last. 2614

Q. Upon what persons?

A. Upon Mr. Edison's employes.

Q. In what special vocations are those employes employed?

A. They are assistants to Mr. Edison; they are workmen, that is all.

Q. Workmen? What kind of work?

A. Some purely mechanical, others drawing, others writing, and so forth.

2615 Q. Are any engaged in work about metals?

A. Very many.

Q. Blacksmiths?

A. Yes, sir.

Q. Machinists?

A. Yes, sir.

Q. How were these measurements made?

A. By Wheatstone's bridge.

Q. What is your opinion as to the reliability of the
2616 Wheatstone bridge for measuring resistance?

A. It is perfectly reliable.

Q. Have you made memorandum showing the result of your observation, and measurements of your resistance, Mr. Kennelly?

A. Yes, sir.

Q. Have you got them with you?

A. Yes, sir.

Q. Will you please produce them?

2617 (Witness produces memorandum.)

Mr. Cockran:

Will you let me ask a question about those, and probably I will admit them in a bunch?

Mr. Poste:

I will do that.

2618 Mr. Cockran:

Q. Then the chances are that I will admit them in a bunch. Describe the manner in which those experiments were made?

A. Two jars—battery jars, seven inches in diameter and eight inches deep, containing an aqueous solution of caustic potash, 10 per cent. by weight.

Q. The same experiments are made in the same manner that Mr. Edison has explained?

A. Yes, sir; precisely.

Mr. Cockran: 2619

It is exactly the same experiment—not similar, but the same.

Mr. Poste:

Q. The same. Now, do you want to examine Mr. Kennelly yourself?

A. Yes.

By Mr. Cockran: 2620

Q. Mr. Kennelly, you did not measure anybody twice?

A. No, sir.

Q. Were you at the office of the Edison laboratory, or were you at the Edison laboratory on the occasion when Mr. Poste, the Referee, Mr. Kenneson and some journalists were there?

A. No, sir; I was not.

Q. Did you hear anything about the result of those experiments? 2621

A. I did hear something?

Q. Do you know in several instances that every body varied?

A. I was informed so.

Q. Did you try it in the case of this man?

A. I did not.

Mr. Cockran:

I will take them all in a bunch now. He can spread it out on the record. 2622

Witness:

There is the paper.

By the Referee:

Q. Did you increase the voltage from one to eight volts?

2623 A. In some of those cases.

Q. You say here eight volts—it looks as if it was all eight volts?

A. It was, in my original notes, I think, from one to eight volts.

By Mr. Cockran :

Q. These experiments were made from hand to hand?

2624 A. Yes, sir.

Q. How long a time did you require those people to hold their hands in the solution?

A. For 30 seconds, as near as possible.

Q. You have notes of the experiments aside from this paper?

A. Yes, sir.

Q. Can you ascertain and state from your notes what persons, whose names are included in this paper, the experiments with any other voltage than eight was
2625 made?

A. I can.

(The paper is offered in evidence and marked People's Exhibit "B," July 23d, 1889.)

The Witness:

There was one, a man named Lehmann.

By the Referee :

2626

Q. Have you the number?

A. Yes, I can find the number from here; I think you will find it 223—number 223.

Q. 223?

A. Yes; just one moment—

Q. What did you say about him?

A. I measured his resistance with varying effect; also another man.

Q. How did it vary in this case?

A. It did not vary at all. 2627

Q. What, did the voltage vary?

A. Yes, sir; from one to eight volts.

By Mr. Poste:

Q. Take the case of Lehmann—what result did you obtain by applying varying voltage to him?

A. I find—the result I found there was no variation, no appreciable variation in the resistance.

Q. Is there a case of another man to whom you applied it? 2628

A. Yes, sir.

Q. To whom?

A. Deems, 221.

Q. From one to eight volts?

A. From one to eight volts also.

Q. How many different experiments on him?

A. I suppose three—one, three—eight.

Q. What result did these experiments produce?

A. Similar results. 2629

Q. Any one else?

A. Yes, sir; a third man.

Q. Give us his name?

A. I don't know his name; I do not remember it.

Q. What number?

A. I believe it is the man 239, but I am not sure of it.

Q. 239, but you are not sure of it. What was the result? 2630

A. The same thing.

Q. Now, in applying these different voltages to these individuals what was the method pursued—followed out for all?

A. I used a different number of cells, and I also interposed resistance between the battery and the Wheatstone bridge with a constant voltage in order to reduce the voltage on the man.

Q. Did he remove the hands from the electrodes between the various experiments?

2631 A. No; he remained with the tips of his fingers resting on the bottom of the jars during the whole experiments.

Q. Were there any others upon whom you made experiments with different voltages?

A. No.

Referee:

(Attached to this Exhibit is a paper headed "Deductions.") 2632

Q. Attached to this memorandum or list appears a certain statement headed "Deductions." These statements appear on the last page of the list, or on the page following the list. Whose deductions are these?

A. My own.

Q. Are they correct statements of your own opinion?

A. They are.

2633 Q. From the result of these investigations?

A. They are.

Mr. Poste:

(To Mr. Cockran.) Now, do you make any objection to that, or shall I prove it?

The Referee:

Do you make any objection to it, Mr. Cockran? 2634

Mr. Cockran:

The "Deductions" added to the Exhibit "B," or whatever it is, is taken by counsel for the Relator as an extended statement of what the witness would testify to under oath.

Q. Mr. Kennelly, do you think that the size of a man's hand, where the resistance is taken in this manner, has any effect upon the result?

A. Yes, sir, I do. 2635

Q. Why?

A. Because, with men having large hands I find a larger resistance.

Q. Then the size of the electrodes, or contact of the electrodes, has an effect upon the result of the tests?

A. Unquestionably.

Q. Is that true also as to the contact—the close contact of the electrodes? 2636

A. Equally.

Q. Have you made any other experiments affecting the resistance of the human body, having in view an ascertainment of the effect of bad contacts?

A. Yes, sir.

Q. Are the results of those experiments reduced to writing?

A. They are.

Q. Have you them with you?

A. I have. 2637

Q. Please produce them?

A. I have not copied them out; they are in this book.

Q. Take it and give us what you have?

A. Five men under conditions of dry and wet hands.

Q. I want you, if you please, to state specifically what you did in the case of each of these men—your method and the results indicated and all the facts bearing on each experiment? 2638

A. These men all did the same thing; they commenced by holding very lightly between the forefinger and the thumb of each hand a No. 11 wire—an ordinary No. 11 wire. The resistance between those two wires—the resistance of the circuit formed by their bodies under these conditions—was then measured. The next step was when they held the wire loosely in their hands—in their whole hand—and the resistance

2639 was then measured. Finally, when they grasp the wire firmly, and the resistance was then measured.

By the Referee:

Q. With the whole hand?

A. With the whole hand as firmly as they could. That process was repeated with the hand which had been previously specially wetted and the resistance noted. The wire was then exchanged for a strip sheet 2640 of zinc eight inches by one and one-half inches and the same double process repeated with each man. Finally each man stood upon a sheet of tinned iron twenty inches square, connected as one electrode, and held the wire in his hand—the other wire in his hand. The resistances were measured with the wet and dry hands under the same variations of pressure.

By Mr. Poste:

Q. How many cells were there in the battery used?

2641 A. I used eight volts.

Q. Give us the result of those experiments, each man, and the varying conditions.

A. The first man with dried hands holding the bare wires.

Q. State slowly, if you please?

A. The first man was holding the wires in his dried hands, just touching the wire, 100,000 ohms; grasping the wire, but not tightly, 80,000 ohms; grasping the 2642 wire tightly in the whole hand, 25,000 ohms. The same three conditions repeated with the hands specially wetted, 10,000 ohms, 14,000 and 6,300 ohms.

By the Referee:

Q. Respectively?

A. Respectively. Again, with the wires exchanged for strips and the dried hands respectively, 75,000 ohms, 25,000 ohms and 6,000 ohms; with the hands wetted, 10,000 ohms, 6,000 ohms and 2,700 ohms;

then standing on sheet metal with the dried hands 2643
the same variations of pressure, 32,000 ohms, 26,000
ohms and 16,000 ohms, respectively. Do you wish any
wire men?

By Mr. Poste:

Q. Yes, I want each one of the men.

A. With dried hands holding the wires?

Q. That is another man; is it?

A. Yes, sir. 2644

Q. Give the name of the first?

A. The first man's name was Lehmann; the second man's name was Hipple.

By Mr. Cockran:

Q. Hipple is here?

A. Yes, sir.

Q. Will you not give me those men's numbers?

A. I will; it will be 227 in the case of Hipple hold- 2645
ing the wire between the finger and the thumb, but
dried; wires, 130,000 ohms; grasping, 36,000 ohms;
grasping tightly, 25,000 ohms. With the hands wetted,
30,000 ohms, 13,000 ohms and 9,000 ohms, respectively.

Q. That is, with the same kind of contacts?

A. Yes; but with the wetted hands. Then with
the strips in the place of the wires, 100,000 ohms, 33,-
900 ohms and 10,000 ohms—with dry hands; 33,000
ohms, 21,000 ohms and 7,000 ohms, with wet hands. 2646
Then standing on the metal with dry hands, 68,000
ohms, 35,000 ohms and 18,000 ohms; with wet hands,
23,000 ohms, 22,000 ohms and 8,000 ohms. Shall I
proceed with the other three men?

A. Yes, go through with each one of them.

A. The man Hayes—do you want his number?

Mr. Cockran:

If you please.

2647

The Witness:

His name is not on the previous list; he is a new man.

Mr. Cockran:

Fresh subject?

Witness:

2648 Fresh subject. Wires, 200,000 ohms, 170,000 ohms and 60,000 ohms; wet hands, 50,000 ohms, 25,000 ohms and 17,000 ohms; strips, dried hands, 160,000 ohms, 77,000 ohms and 37,000 ohms; wet hands, 55,000 ohms, 30,000 ohms and 16,000 ohms; standing on the plate, dried hands, 110,000 ohms, 100,000 ohms and 49,000 ohms; wetted hands, 50,000 ohms, 38,000 ohms and 16,000 ohms. The man Frederick Ott, number 251—wires, dried hands, 92,000 ohms, 85,000 ohms and 2649 44,000 ohms; wetted hands, 50,000 ohms, 35,000 ohms and 21,000 ohms; strips, dried, 50,000 ohms, 40,000 ohms and 12,000 ohms; wetted, 32,000 ohms, 28,000 ohms and 8,000 ohms; standing on plate, dried hands, 55,000 ohms, 35,000 ohms and 20,000 ohms; wetted hands, 32,000, 28,000 and 14,000 ohms.

By Mr. Cockran:

Q. This is all the unknown man, the man whose name is not down here? 2650

A. Yes, this is a new man; 251, Ott.

Q. No. 251, a gentleman named Ott?

A. Ott, yes. The last man's name is Batchelor.

Q. What is his number? Oh! it is 254.

A. That is right; there is only one. Dry hands, 400, 200, 70,000.

Q. Four hundred ohms—you mean 400,000?

A. Four hundred; I have been reading them that way, lately.

Q. You said 400. 2651

A. Yes.

Q. I mentioned it because it might confuse me.

A. Precisely, sir: 400,000, 200,000, 70,000; wet, 14,000, 16,000, 13,000; strips, dry hands, 200,000, 80,000, 21,000; wet hands, 100,000, 14,000, 9,000; standing on plate, dry hands, 200,000, 80,000, 60,000; standing with wet hands, 60,000, 40,000 and 35,000. There is also appended the resistance of those men's bodies in ordinary plain water between their hands. 2652

By Mr. Poste:

Q. Ordinary plain water between their hands? Give us the result of those?

A. A Hipple—

Q. Describe a little more fully the manner of the test.

A. The same as in the test fully described by Mr. Edison, except that plain water was substituted for the solution of caustic potash. 2653

Q. Give us the result?

A. A Hipple, 2,550; Hayes, 2,700.

By Mr. Cockran:

Q. What is Hipple's number—227?

A. Yes. Ott, whose number you have, 251—I think—

Q. Yes.

A. 2,250, and Batchelor's, whose number you also have, 2,650. 2654

By Mr. Poste:

Q. Please look at that last page there, "Deductions." I ask you to state if there are any further or other deductions from your experiments that you desire to state as a matter of opinion?

A. No, I do not remember any.

Q. Mr. Kennelly, can you tell me the relative con-

2655 ductivities of ordinary electric-light wires on the human body?

A. Yes; roughly. A man, as measured in that description of experiments, would have about 200 times the resistance of a mile of common over-head copper wire.

Q. I call your attention to the subject, to the burning effects of a current of electricity—arc, and the subject of the arc. Please state how burning effects
2656 are produced. To what are they due—and also the arc?

A. The arc and the burning effect in the case of the current passing through a human body is essentially due to bad contact with that body.

Q. Now, speak a little further on the subject of the arc; what is the arc?

A. The arc is gaseous matter, at a very high temperature, which gives a passage to electricity.

Q. How is that gaseous matter obtained? From
2657 what source does it come?

A. By the volatilization of the electrodes at that high temperature.

Q. Is an arc possible if the contact of the electrodes with the object or conductor is perfect?

A. With a human being; no.

Q. If the contact of the electrodes with a human being is perfect, would any burning effect be produced?

2658 A. If the contact is made through liquid material it is impossible.

Q. Take the fact that burns are caused in a given case of a contact of a man with the current or a conductor of the current, what fact is thereby indicated to your mind bearing upon the question of the quantity of current that passes and the character of the contact?

A. First, that bad contact has existed, and second, that owing to bad contact a smaller amount of elec-

trical pressure must have been brought to bear upon 2659
the living tissue of that man than would have been
the case if good contact had been secured.

Q. And no burning manifested?

A. And no burning manifested.

Q. Now, Mr. Kennelly, the current generated by
the 1,050 volt, 37-amperes Westinghouse dynamo was
passed through the body of the man, from head to
foot. Now, if heat is developed by such a current, how
would it be distributed through the body, assuming 2660
perfect contact with the electrodes?

A. In exact accordance with the disposition of the resistance in his body.

Q. In your opinion, it would not be collected at any one point?

A. I don't know—I suppose it would not be collected at any one point.

Q. What is your opinion as to the manner in
which electricity is conducted through the human
body—by what agency? 2661

A. I suppose through the liquids.

Q. Are they saline?

A. They are all saline.

Q. Mr. Kennelly, did you attend any experiments upon animals?

A. I did.

Q. When and where?

A. Between June, 1888, and the last experiments
made before a medical commission from Auburn, at a 2662
date I forget, but which I have.

Q. Have you the notes of your observations of those experiments?

A. All of them.

Q. Will you please produce them?

A. They lie in five books.

Q. Those notes were made by yourself?

A. All by myself.

Q. And in your own handwriting, of course?

2663 A. Yes, sir.

Q. Please turn to the notes of the first series of experiments?

A. I have them. (Producing book.)

Q. Can you state, from your present recollection, all the details of those experiments?

A. Yes.

Q. I mean without refering to your notes?

A. With less accuracy, I can. If you will allow 2664 me, I think the first I have here may not be the first you have there.

Mr. Cockran:

How do you mean?

The Witness:

He has by his side a copy.

Mr. Poste:

2665 Of that book?

The witness:

Yes.

Mr. Poste:

Begin with the first notes you have, and state what your notes show?

2666 Mr. Cockran:

Will you let me have one of those books, so that I can follow him and see the order? What date are you talking about now?

The witness:

On the 9th of July, 1888.

Q. Where?

A. At the Edison laboratory.

Mr. Cockran: 2667

Where is that on this page?

The witness:

I do not know if it's there at all; I think it is not there.

Mr. Cockran:

You don't think it is here at all?

2668

The witness;

I think not.

Mr. Cockran:

Have you read this?

The witness:

I did read it.

2669

Mr. Cockran:

And you do not think this was included?

The witness:

I think not.

Q. Who was present?

A. Mr. Batchelor, whose resistance you have, and myself, and several others whom I do not remember. 2670

By Mr. Cockran:

Q. You said July 10th, 1888?

A. Yes, sir; July 9th.

By Mr. Poste:

Q. State what took place?

A. Two dogs were provided for experiment. The connection was made with these dogs by bandages of

2671 wet cotton waste covered by wire—bare wire—wrapped upon one fore-leg and one hind-leg, respectively—800 volts from a continuous current machine was applied to the first dog for two seconds. The result was fatal, but not immediately.

Q. Continuous current?

A. Yes, sir.

Q. Go on.

A. The second dog was treated in the same way—
2672 290 volts was given also for one second from the same continuous current machine, 1-10 ampere. It indicated result not fatal; dog not much hurt. Current then alternated at the same voltage, by hand, eleven times per second. Contact made for two seconds—result not fatal, but dog much debilitated for several seconds. Current then alternated 27 times per second at 800 volts pressure contact, for three seconds; result, fatal in less than half a minute.

Q. Now, when you say "current alternated by
2673 hand," what do you mean?

A. I mean that by means of a wheel—a rotating wheel—the contact was made twice during every revolution, and at each successive contact the current was alternated in direction.

Q. Any other experiments?

A. Yes, sir.

Q. Describe these dogs, please?

A. The first dog is mentioned as a small black
2674 mongrel, the second one a light tawny animal of the greyhound breed.

Q. Size?

A. Not given.

Q. Greyhound?

A. Yes, sir.

Q. Go on with your experiments?

A. The next experiment occurred on the 12th of July, and was made in the presence of Mr. Harold P. Brown and Dr. Peterson. Fox terrier bitch, length from tip of nose to base of tail, 24 inches; height, 15 inches; weight, 15½ pounds. The electrodes were wetted cotton bandages as before, applied to the right foreleg and hind leg; this we wrapped over with copper wire—connection as shown. Commenced with 400 volts, a continuous current at one-twentieth of an ampere, not fatal; 600 volts, one-tenth of an ampere, momentary contact, not fatal; 1,000 volts, one-fourth of an ampere, momentary contact, not fatal; 1,000 volts current subsequently fatal in two minutes. 2675

Q. These were continuous currents? 2676

A. Yes, sir; continuous currents, momentary, they did not last more than a small fraction of a second.

By the Referee:

Q. What do you mean by momentary?

A. They do not last more than a few seconds.

By Mr. Cockran:

Q. He was ultimately killed? 2677

A. That followed in the fifth experiment.

By Mr. Poste:

Q. Have you made any experiments with the alternating current?

A. Yes; the first experiment that is noted here is on the 21st of July—no; on the 21st of July; yes.

Q. 1888? 2678

A. 1888.

Q. Where?

A. At the Edison laboratory.

Q. Who was present?

A. Mr. Batchelor was present.

By Mr. Cockran:

Q. Who is Mr. Batchelor?

A. Mr. Batchelor is the manager of Mr. Edison's works.

2679 Mr. Cockran:

Oh, yes.

By Mr. Poste:

Q. State what was done.

A. All the experiments of that day?

Q. Yes.

A. The first, yellowish brown bitch; weight, 41½
2680 pounds; length, 37 inches; height, 22 inches; resistance, 8,700. Tried the effect of the induction coil of dynamo—dog bandaged on legs as usual.

By Mr. Cockran:

Q. Do you know whether that is in this book?

A. No, sir; I do not. Current on for several seconds; small induction coil; quarter of an inch spark used in this experiment; dog struggled, but unhurt.
2681 Used larger coil, used for special work; 2½ inches; full spark; current on dog five seconds; dog struggled, violently, not hurt. Took large induction coil; friction by mercury interruption; contact for five seconds; dog struggled, but unhurt; placed wet pads in and under the ears; this as before; dog struggled violently, but got through much excited.

By Mr. Poste:

2682 Q. This was with an induction coil?

A. Yes, sir. Alternating dynamo making 17 revolutions per second, 288 alternations per second; found the volt quite insufficient, only about 45 volts; used the paraphernalia described on page 9, with some 10-amperes Cardew voltmeter employed for measuring voltage. Primary circuit of voltage about 123, with some 10 amperes. Secondary circuit, 120 volts, or 6,000 ohms; total, 340 volts. Same dog as that mentioned in previous experiment; resistance between leg bandages, 14,500 ohms: Mr. Batchelor present. Voltage before making contact, 380 volts; made contact for five seconds in primary circuit: mean voltage during the time the current was on, 250; dog uttered no sound; muscles convulsed and no struggling, but died almost instantly; no struggle after current off, beyond muscular twitching. That concluded these experiments. 2683

Q. Now, any other experiments?

A. Oh, yes. These were experiments on the 11th of August, 1888.

Q. 1888? 2684

A. Yes.

Q. Where?

A. Edison laboratory.

Q. Who were present?

A. No one mentioned as being present. Siemen's alternating machine making 1,380 revolutions per minute, 276 alternations per second. Black smooth terrier; weight 21½ pounds; length 29 inches; height, 15 inches, bandaged with waste on outside of fore and hind legs; used large converter; contact for three seconds in primary; mean voltage, 205; dog quite quiet while current on; attendant did not know contact had been made. On breaking contact dog struggled violently for a few seconds and then fell dead. The heart beat for some little time afterward. That was dog 14. Black shaggy terrier, weight 19½ pounds, length 25 inches, height 14 inches; used no converter, simply the machine in direct circuit with dog and voltmeter on terminals. Contact made for 15 seconds indicated voltage 176; on breaking circuit dog fell dead without a struggle; no evidence given by dog of having felt current at all. Dog 15, no converter; black beagle, weight 39½; length 36 inches; height 15 inches; contact made for 15 seconds indicated a voltage of 178. Dog gave no sign during application of current, standing rigidly like numbers 13 and 14, without spasms or tremble, and fell slowly on breaking 2685 2686

2687 circuit, without uttering any sound. One or two disconnected gasps were heard, but the eyes were glassy and insensitive, and dog evidently unconscious; lung action quite ceased in 15 seconds—Cardew voltmeter.

By Mr. Cockran:

Q. That was not in this book?

A. I believe not, sir.

Q. Will you just mention those that are in the book
2688 as you go along?

A. I will.

By Mr. Poste:

Q. Go on?

A. Dog 16; black and white collie, length 25 inches; height 21 inches; weight 57½ pounds. After securing in box, respiration 142 per minute. Direct current from municipal machine in direct circuit with dynamo; voltage 400; contact made for 40 seconds;
2689 dog howled once on application of the current; consciousness ceased, apparently, after 15 seconds, judging from the eye; the breathing became stertorous; dog gave a few gasps; on breaking circuit no sign of life; through an oversight a meter not read.

Q. That was a continuous current?

A. Yes, sir. No. 19, yellow spitzbergen dog, weight 3½ pounds, length 32 inches, height 13 inches, resistance 200,000 ohms; wetted bandages thoroughly
2690 and repeated test; resistance still as high; respiration invisible; continuous current 304 volts; contact for 30 seconds; on making contact, dog leaped from box and howled and struggled almost all the time. After current was off dog not apparently hurt; respiration slow, but not measurable; resistance after contact 140,000 ohms.

By Mr. Cockran:

Q. Was that a continuous current?

A. Yes, sir; a continuous current. Alternating current direct from machine, 100 volts, contact for 65 seconds, dog silent when current put on, but whined once at about half of the period. Dog evidently considerably depressed, but not seriously hurt. Cardew voltmeter 504. Contact for 30 seconds; during that time the dog was silent and motionless; the head and body slowly falling; no struggle; dog dead when current removed. Resistance after death, 2,900 ohms. 2691
The second dog, the small brown mongrel, weighed 12½ pounds, length about 17 inches, height about 10 inches, resistance 4,000 ohms. Respiration could not be detected. 10 o'clock—alternating current without converter, usual speed; reversals about 300 per second; voltmeter, 335 volts; contact a second and a half as near as could be judged; dog uttered no sound; meter about 4-10 ampere, not reliable; after current was removed gave a few convulsive gasps and died very quickly; resistance after death, 2,600 ohms. 2692

Q. Does this book contain any thing else but these experiments? 2693

A. Yes, sir.

Q. What else does it contain?

A. Experiments of all kinds.

Q. Would you have any objection to leaving it?

A. If Mr. Edison has none, I have none.

Q. Just mark out the experiment part of it, will you, so that I can look at it while you are here?

A. Yes, sir. 2694

Mr. Poste:

Of course there is no objection. If there is anything there that you would not want to ask to see, Mr. Cockran, I will see that you are furnished with a correct copy.

Mr. Cockran:

I want to see the original. I find a direct contradiction between this and that. I think it might prove

2695 a source of valuable information to me. I think it is the only way in which it can be done. We have no scientific experiments except these, and it is absolutely essential that everything about these should be stated. I think I ought to have a right if that is to be of any service at all; I think I ought to have a right to see the original notes.

Mr. Poste:

2696 I say that if there should be anything that you desire to see, I have no doubt that you will be shown these books—this gentleman will sit down with you and examine them.

Mr. Cockran:

You do not understand it; instead of insisting that this gentleman should testify from memory, which I have a right to do, I permitted him to read his notes. 2697 Now, I have a right to show that it is correct.

By the Referee:

Q. You are reading from your books?

A. Yes, sir.

Q. Now, is there any objection to your simply opening your book, at the place where you read, to show it to Mr. Cockran?

A. At the place where I read, there is no objection.

2698 Q. Are there any other notes aside from those you have read?

A. No, sir; I have not read them verbatim; I have left out technical figures. I have given facts.

Q. Those notes that you read you have no objection to his seeing?

A. No, sir.

Mr. Cockran:

Just pick out the part. Go on, you have more.

Mr. Poste: 2699

He has just got to turn down leaves.

The Witness:

On Thursday, the 30th of August—

By Mr. Cockran:

Q. Are these detailed in this book—these that you are reading now?

A. I think not, sir. The date will show you. 2700 "Physiological Experiments continued:" Brown setter mongrel bitch, weight 33 pounds, length 32 inches, height 20 inches, resistance 11,000 ohms.

Q. Who was present at the time.

A. No one was mentioned as being present. I had probably one or two assistants. 9 o'clock—Direct current municipal machine: contact for 60 seconds; voltage 276 volts; dog howled and struggled until last second or two; current 4-10 of an ampere, increasing it to 45-100. 9 o'clock and one minute—Current off, 2701 dog dead. It is probable that ten seconds less current would have saved it.

By Mr. Poste:

Q. That is the continuous current?

A. That is the continuous current. Resistance after death 740 ohms. No. 32, small black terrier bitch, weight 10 pounds, length 18 inches, height 10 inches, resistance 97,000 ohms alternating current; 2702 517 volts indicated 300 alternations per second. Contact made for about one second; dog died immediately —a few gasps involuntarily issued.

By Mr. Cockran:

Q. What did you say?

A. A few involuntary gasps issued.

Q. From the dog?

A. Yes, sir; from the dog. Resistance after death

2703 8,000. "Physiological Experimental" continued December 4th, Wednesday.

Q. December 4th, 1888?

A. December 4th, 1888, Wednesday.

By Mr. Poste:

Q. Where?

A. At the Edison laboratory. The Board appointed by the Medico-Legal Society arrived about three o'clock in the afternoon, Dr. Doremus—Prof. 2704 Doremus, Dr. Peterson, Mr. Gerry and Mr. Ingraham among the number. Two electrodes covered with sponges were supplied by Dr. Peterson; connecting wires were soldered to those. The animals provided for the occasion were a horse and two calves. Tried the first calf with a converter sent from New York—the coarse circuit being on the machine and the fine wire on the animal. The potential difference at the moment of making the contact was 1,100. Immedi-2705 ately after breaking the circuit it was about 1,000 and during the contact, which lasted for 30 seconds, the reflection fell about 100; the animal was left uninjured. Finding that the converter failed to sustain the electro-motive force used, the current from the machine direct—an alternating machine—was employed. The voltage before making contact was 833. During the contact it averaged 770. The contact lasted eight seconds. Breathing ceased in one minute and a half: the resistance between the electros before death was 2706 23,200 ohms.

By Mr. Cockran:

Q. This was a calf?

A. Yes, this was a calf. The second calf, weighing 145 pounds; resistance between electrodes 1,300 ohms; direct action of alternating machine, as before, alternating 200 times per second; the voltages were 833 and during the contact averaged 750; contact lasted

for five seconds; breathing ceased in one minute and a 2707
half. Horse thrown and its four feet tied together. Tried converters to attain high momentary voltage; was not successful. Obtained so high voltage that Cardew gave way, and obliged to measure voltage by lamps; ran with these lamps there, converter about 1,000 volts; gave a momentary current, the voltage falling immediately; horse uninjured. Resorted to machine, current 600 volts; contact made for 15 seconds; horse subsequently struggled, but not badly injured. 2708
Seven lamps were then brought up to brilliancy, indicating 700 volts and with current applied for 25 seconds the water steamed through the cotton waste, showing insufficient metal contact; respiration then ceased; the contacts on the calves were made on the forehead and on the spinal cord.

By the Referee:

Q. How much voltage did you estimate that last
was when he died—when you say the lamps were 2709
brilliant?

A. I suppose 700 volts—seven lamps.

Q. You approximated it?

A. Between 700 and 800, probably about 750; the contact on the calves was made on the forehead and spinal cord, just behind the vertex; electrodes were soaked in solution of zinc sulphate and hair clipped; in the case of the horse the bandages were silk waste, which were above the foreleg on the knee. 2710

By Mr. Poste:

Q. One moment; are those experiments in that book?

A. Yes, I think so.

Q. Were there any other experiments that you attended?

A. Yes, sir; "Record of some experiments on the killing of animals by electricity, made on the 11th of

2711 March, 1889, before the New York State Commission."

Q. Where?

A. At the Edison laboratory; first a white half Spitz dog.

Q. One moment; are those experiments in here?

A. Yes, sir; I think so.

Q. They are not there.

A. They are not there? Oh, a white half Spitz dog, weighing 21½ pounds, resistance 2,700 ohms; electrodes
2712 bandages of waste dipped in hot zinc sulphate solution, density 1.1, voltage 736, alternating current, time of application ten seconds; dog protruded tongue during application of current, but never moved when current was off; no sound nor gasp nor heart action. Second, a black Newfoundland dog, weighed 37½ pounds, resistance 2,600; hair clipped on the forehead, felt electrode, 4 by 11, soaked in zinc sulphate tied on forehead; bandage of waste on right hind leg above the knee; voltage 774; time of application 15 seconds; dog rigid
2713 through application and never stirred afterward; no sounds, gasps or heart action. Third, mongrel, liver-colored; weight 60 pounds; resistance 1,000 ohms; contact, back of neck with larger felt electrode, and over heart, under axilla, with smaller electrode, 4½ by 6; voltage 664; alternating current; time of application ten seconds; dog made several gasps after removal of current and showed signs of recovery; evidences of current having passed over skin through wet hair
2714 owing to larger electrodes so wet and so close, the singeing of the hair being audible; safety-catch, also, of the machine carried away. Repeated experiment immediately with 604 volts; time of application ten seconds; the same singeing of hair audible between electrodes, and safety-catch almost melted away; dog not quite dead; removed electrodes from axilla; put bandage above the knee; voltage 650; alternating current; time of application, ten seconds; result fatal; resistance after death, 250 ohms. Fourth, brown, small mongrel;

weight, 35 pounds; resistance, 500 ohms; contact on 2715
forehead with small felt electrode and a waste bandage
on the right hind leg above the knee; resistance 500
ohms; voltage 512; time of application, alternating
current, ten seconds; no sound, gasp or heart action
after removal of current. Fifth, calf weighing 74
pounds; resistance, 500 ohms; electrode on right hind-leg,
with wet waste and smaller felt electrode on back
of neck; voltage 688, alternating current; time of application,
15 seconds; calf not quite dead when current 2716
off. Repeated application; voltage 604; time 15
seconds; calf quite dead on removal of current. Sixth,
calf weighing 100½ pounds; resistance, 550 before, and
280 after, death; similar felt electrode and compress on
right hind leg; voltage 752; time of application, 20
seconds; calf quite dead on removal of current.
Seventh, calf weighing 98 pounds; resistance 340
ohms; after death, 230 ohms; contact on back of neck
with similar felt electrode and right fore-leg; voltage
760; alternating current; time, 15 seconds; result, no 2717
sound, gasp or heart action when current off. Eighth,
calf weighing 109 pounds; resistance, 380 ohms; contact,
right fore-leg and left hind-leg; waste compress;
voltage 736; time, 15 seconds; application alternating
current; calf not quite dead; slight attempts at gasping.
Repeated with 604 volts; time, 20 seconds; quite
fatal. Ninth, a brown horse; weight, 830 pounds; resistance,
500 ohms; after death, 200 ohms; contact on
forehead with similar electrode and on left hind-leg 2718
above the knee with large electrode; fore-feet and hind-feet
hobbled; horse fell before put on; voltage 946;
alternating current; time, 25 seconds; horse rigid during
application of current and after removal no heart
action or sign of life. Repeated application of current.
All these were measured with a Siemen's galvanometer,
and are attributable to the zinc sulphate solution, which
was kept hot all the time. President H. P. Brown, Dr.
McDonald, the demonstrator of physiology in the insti-

2719 tution in the State of Pennsylvania, two other gentlemen, and a gentleman from the Albany Commission office, were present.

Q. Did you attend any other experiments supervised by other persons?

A. Yes, sir; I attended those experiments by Mr. Brown.

Q. Where?

A. At the Edison laboratory.

2720 Q. Please state the result of those—you took notes of those?

A. I have notes of those, but I don't know if I have them in this book. Some of them I have stated.

Q. Did you attend the experiments made at the Columbia College?

A. One of them, sir: there were two of them made.

Q. Have you any notes of these experiments?

A. If you will give me the date I will tell you in a minute.

2721 Q. Mr. Brown says he thinks it was Monday, July 30th?

A. Yes. I have those; I miss them out: I didn't intend to do so.

Q. You have notes of that series?

A. Yes.

Q. Please state who was present, in the first place?

A. "Experiments and Observations taken at the Exhibition at the School of Mines, Columbia College, 2722 New York, before the New York Board of Electrical Control." Large black retriever, mongrel; weight, 76 pounds; length, tip to tip, 65 inches; height, 24 inches; resistance, 15,300 ohms; first current at 2.53 o'clock; voltage at machine terminals, 300; dog howled and struggled, but was not hurt.

Q. What current was that?

A. Direct current machine; continuous current machine.

Q. Continuous current?

A. Continuous current machine. At 2.57 o'clock, 2723 volts 400; dog howled and struggled, but was not hurt; 2.58 o'clock, 500 volts; dog howled and struggled but was not hurt.

Q. Still continuous current?

A. All continuous current. 3.02 o'clock, 700 volts, one-fifth of an ampere; momentary current; dog howled and struggled, but was not hurt. 3.09 o'clock, 1,000 volts indicated .45 of an ampere; dog struggled and howled at each shock, but otherwise not 2724 hurt. 3.25 o'clock, Siemen's machine, excited by a 100 volt Edison dynamo; before contact, 500; contact thirty seconds; dog howled; same current on, and struggled for a little time and then fell dead. The Superintendent of the Society for the Prevention of Cruelty to Animals here interferred. That is all I have of that day.

Q. That was the time when Mr. Gibbens was pressent, wasn't it—do you know Mr. Gibbens?

A. No, sir; I don't know Mr. Gibbens; I don't re- 2725 member him.

Q. The Board of Electrical Control were present, as you understand?

A. The Board of Electrical Control were present.

Q. Is that all?

A. That is all, sir; yes.

Q. Did you experiment on a calf?

A. I did, but I took no note of it, because I took no measurements of it. It was a preliminary experiment 2726 to ascertain if the measurements were all right, before the Board came. A calf was secured and was killed by the alternating current on the first application. No more than that do I remember.

Q. Now, Mr. Kennelly, in your opinion, can an electrical current be applied to the human body by artificial means in such a manner as to produce death in every case?

A. I believe it.

2727 Q. Instant death?

A. I believe it.

Q. Painless?

A. I believe it.

By the Referee:

Q. While Mr. Poste is looking at his memoranda I want to ask you the same question substantially that was put to Mr. Edison. You have handled various 2728 kinds of dynamos and understand their powers and the methods of using them?

A. Yes, sir.

Q. You have not stated in answer to the counsel how high a voltage would be required that would make death certain?

A. I don't know.

Q. You don't know how high a voltage?

A. I don't know.

Q. How high is the highest voltage that could 2729 with safety—and electrical energy too—could with safety, considering the present state of electrical science and methods of insulation, and all that, be generated and used for executions by electrical action.

A. I should say 4,000 volts.

Q. Beyond any question?

A. I think beyond any question.

Q. To do that you would use one dynamo, or several dynamos in series?

2730 A. I should prefer to use one dynamo.

Q. Why?

A. Because it is more certain than two—a combination.

Q. But two could be used?

A. Oh, yes; two could be used.

Q. There would be no trouble at all about getting a 2,000-volt machine?

A. There would be no trouble about it?

Q. Getting a machine that would produce 2,000 volts?

A. None whatever. 2731

Q. Would you simply increase the amount of the machine?

A. Simply put on more wire. It is easy for a machine that will give 2,000 volts to raise it—give more speed by changing the wire.

Q. Would the wire then be insulated?

A. Yes, sir.

Q. And safe to handle?

A. Yes, sir. 2732

By Mr. Poste:

Q. That could be done with a Westinghouse dynamo?

A. I presume that could be done with any dynamo.

Q. Referring now to the testimony you have already given, as to the conductivity of copper wire and the human body, if a man hangs from an electric-light wire by his feet—one wire— 2733

A. By his feet?

Q. Yes, to an electric-light wire by his feet—not touching the ground, is it possible for the man to receive any current which is passing over the wire?

A. The fraction of current would be so small it means nothing.

By Mr. Cockran:

Q. What's that? 2734

A. The amount of current that he could receive would be so minute that it isn't worth talking about. You could say how much he would receive, but it would be so exceedingly a minute proportion that you can't describe it easily.

By Mr. Poste:

Q. What indicates the proportion?

A. The distance between his legs as they hang

2735 astride the wire and the resistance of his body from knee to knee, together with the resistance of the wire in that length.

Q. The resistance of the wire between those two points, as compared with the resistance of his body, would be infinitesimal?

A. Infinitesimally small.

Q. And the rule of transmission of currents would follow that law, that it goes in the conductor of least resistance?

2736 A. The quantity of current always goes inversely as to the resistance.

By the Referee:

Q. In other words, what you mean is that the current would go through the wire instead of going through the man?

A. Just so.

Q. Suppose the wire was deprived of its insulated 2737 covering?

A. Yes, of course I assume that it is.

Q. Suppose it was bare wire where one part touched it, and not insulated but to a slight extent—would that make a difference?

A. Only a difference in the amount of current.

By Mr. Poste:

Q. Your answer to my question was based on the 2738 assumption that the wire was insulated, or not?

A. Just so; the answer applies to either case.

Q. Does it make any difference whether the wire is insulated or not?

A. Certainly, because the resistance from the wire through his person includes two insulating resistances.

Q. But even if the wire was not insulated at all?

A. The same thing holds good; the quantity of current would be infinitely simple.

Q. And if that man had—is there any power in an electrical current that would hold a man by the soles of his feet—soles of his shoes—to an electric wire? 2739

A. There is no such known power.

Q. Is such a thing possible?

A. No; I do not think it is possible.

Q. Do you think it is possible that a man could be held by the soles of his bare feet to an electric-light wire in that manner?

A. Held by the force of the current?

Q. Yes? 2740

A. No, I do not think it is possible.

Q. Mr. Kennelly, is there any variation in the resistance of an incandescent electric lamp, that you have observed?

A. They vary among each other very slightly.

Q. Taking the same lamp, does it vary at different times?

A. It varies with the strength of the current passing through it, slightly.

2741

By the Referee:

Q. Slightly—that don't convey any idea—approximately how much?

A. At full illumination the resistance varies very slightly indeed; say one per cent. in a variation of current amounting to ten per cent.—amounting to five per cent.

By Mr. Poste: 2742

Q. When you speak of electrical energy, with reference to electricity producing an effect, what factors enter in?

A. The amount of current and the pressure at which it is delivered.

Q. Volts and amperes?

A. Volts and amperes.

2743 *Cross-examination* by Mr. Cockran:

Q. Let me take you up on the last subject first. Mr. Kennelly, in the case of a gentleman who was suspended by his feet from the end of a wire—

A. From the end of a wire?

Q. From a wire we will say — from the side of a wire; how do you account for his remaining in the air if he didn't get a current?

A. I could not account for his remaining in the air
2744 under those conditions at all.

Q. Wouldn't it be an unusual circumstance for you to see a man standing on his head with nothing but air under his head?

A. I should consider that it was.

Q. Do you reject the statement that Dr. Landon Carter Gray read the other day?

A. I don't know the statement; I haven't read it.

Q. This statement was simply the same as Mr.
2745 Poste put it to you?

A. I should only believe it if I saw it.

Q. You would not believe it on the strength of any medical record?

A. Unless I knew the man and was convinced of his capability.

Q. Would you believe it when you saw it?

A. I would believe it when I saw it.

Q. Sure of that, that you would believe it?

A. If I saw it.

2746 Q. Would you regard such a work, for instance, as the *British Medical Review*—

Mr. Poste:

Is not that—

A. If I saw such a statement in the paper you mention, even that authority would not convince me of it.

Q. It would not convince you?

A. No.

Q. Now, let me suggest to you that if there was a break at the other end of the wire, would the man get the current then? 2747

A. It is impossible for the man to get the current under any circumstances, except the minute fractional amount that I have mentioned.

Q. Assuming that he was suspended in the air—assuming that was possible—that must have been the effect of a powerful current?

A. I don't think it is possible; I think it is impossible. 2748

Q. Will you assume for a moment that such a thing is possible; I say assume that it is possible that a person was suspended in the air by his feet?

A. I will assume it to be possible.

Q. Could that be attributed to anything else than a powerful current?

A. It could be attributable to no known cause.

Q. And therefore your testimony is that that thing is not possible? 2749

A. It is not possible.

Q. And if you found that that had occurred it would tend to disturb the reliability of your convictions on that subject?

A. If I saw it, and was obliged to believe it, I would be obliged to alter my convictions on that subject.

Q. Now, if you discovered certain phenomena in electricity which you could not account for, you would immediately proceed to rearrange your hypothesis? 2750

A. Yes; just so.

Q. That is just the condition that that science is in—that hypothesis has got to be remodelled, if certain discoveries are made from day to day?

A. Sometimes.

Q. It is a belief which, in your judgment, would have to be surrendered in view of fresh manifestations?

A. Yes.

Q. And the whole subject is entirely within the range of experiments?

2751 A. Not the whole subject—much of it.

Q. That is so in every instance—that branch of it as to the amount of current that can be sent through a human body?

A. That part is experimental; yes.

Q. Purely experimental?

A. Purely experimental.

Q. Now, I observe that you have read a number of experiments in which persons—in which things, I will say—were killed by the continuous current. Have you read this book of Mr. Brown's? 2752

A. I did read it.

Q. Did you help prepare it at all?

A. No, sir.

Q. Did you see it in manuscript?

A. I did not.

Q. Did you give any suggestions as to its preparations?

A. I did not.

2753 Q. Returning to that dog which is called "Dog No. 3," that was a fox-terrier bitch, young, and of good vitality?

A. What date?

Q. July 12, 1888; have you got it?

A. Yes, sir; what dog is that.

Q. Dog No. 3, fox-terrier bitch, young, and of good vitality: weight, 13½ pounds; height, 13 inches; length from tip of nose to base of tail, 24 inches—by the base of the tail I suppose you mean the part of the tail which is nearest the body, or the part nearest the ground? 2754

A. The part nearest the body.

Q. Have you got that experiment now?

A. I have got a dog that is like it. Would you please read the weight again?

Q. 13½ pounds; height, 13 inches—

The Referee:

Skye-terrier bitch.

Q. Fox-terrier bitch; resistance 6,000 ohms? 2755

A. No, sir; I haven't got that.

Q. You read it, Mr. Kennelly, and I copied it exactly—I followed you exactly?

A. I have two dogs down for that day—July 12th, did you say?

Q. Yes.

A. Pardon me, I got the wrong date. Yes, I think I have the dog you mean—dog No. 3.

Q. Let me read it and see if it is exactly like this: 2756
Dog No. 3; fox-terrier bitch; young and of good vitality; weight, 13½ pounds; height, 13 inches; length from tip of nose to base of tail, 24 inches; resistance, 6,000 ohms—have you got that?

A. No, sir; I have not.

Q. Have you got Dog No. 3 there at all?

A. I have got two dogs for that day.

Q. Have you got a dog under the head of "Dog No. 3."

A. Yes, I have—(hesitating)—Now I have it—fox- 2757
terrier bitch.

Q. Young and of good vitality?

A. I have got that. Length, tip of nose to base of tail, 24 inches; height, 13 inches; weight, 13½ pounds; resistance, 6,000 ohms.

Q. Resistance 6,000 ohms?

A. Yes; I have got that dog.

Q. Continuous current, E. M. F., 100 volts?

A. Yes. 2758

Q. Tell me what happened to that dog?

A. It took 1,000 volts—I have read that case.

Q. I want to know what happened to him?

A. He died in two minutes.

Q. I will read to you now: "Continuous current, E. M. F.; current, 0.5 ampere; circuit closed at 9.35 P. M., July 12, 1888; dog howled and struggled; but unhurt." Is that a complete and true account of the experiment?

2759 A. Yes.

Q. It is?

A. Yes.

Q. Why, I thought you read it that the dog was dead?

A. It is not complete.

Q. It misrepresented it by suppressing the part that the dog died under the continuous current?

A. I don't know that it is suppressed.

2760 Q. Look at it. Wouldn't it represent to you that the dog finally died by that continuous current? Give me a candid answer, if you can?

A. The experiment does not state the conclusion of it.

Q. And it does not state it, in this respect, that it represents the dog as having escaped from the continuous current?

A. It does not represent anything beyond the fact that it doesn't give the conclusion of the experiment.

2761 Q. Does it represent the fact that he escaped?

A. No, it does not.

Q. Doesn't it say that the dog howled and struggled and was hurt?

A. It doesn't say anything more.

Q. It doesn't proceed to describe that he was killed by a subsequent experiment?

A. No, it does not.

Q. Do you know that that is a book written to show that the alternating current is more dangerous than the continuous current? 2762

A. I see it on the face of the book.

Q. Pardon me. Are you not familiar with the book?

A. I have read it once.

Q. Haven't you read it through enough to be familiar with it?

A. No.

Q. You were concerned in the preparation of the experiments that form a large portion of that book?

A. I am aware of that. 2763

Q. And you mean to say that you are not familiar with the book?

A. I mean to say that I read that book through hastily once; and that is all I know of the book.

Q. If you look through this book, Mr. Kennelly, or as you looked through this book, did you not see that it was a book that was designed to show the comparative danger to life of the alternating and continuous currents? 2764

A. I did.

Q. Do you think that was a fair statement of the experiment, in view of the purpose, as expressed by the book?

A. I think that experiment would have been terminated more accurately if the final result had been given.

Q. In other words, if he had told the whole truth; do you not?

A. The truth is there. 2765

Q. That is, as far as it goes.

A. Yes.

Q. Not the whole of it?

A. Yes; that is so.

Mr. Poste:

Mr. Cockran, I think you yourself must be laboring under a misapprehension, because I do not think you would mislead the witness yourself intentionally. If 2766 you will look at the case—

Mr. Cockran:

I am bringing him down.

Q. Let me have the whole story. Now, Mr. Kennelly, that dog actually died, according to your experience, didn't he?

A. According to the entry in this book, he died.

Q. There was no question about that death?

2767 A. No, I believe not.

Look through and see, now, if after the various applications there is anything that throws any doubt upon the ultimate death of the dog?

A. No, because I read that Dr. Peterson then dissected.

Q. After the dissection there was no doubt about the death?

A. I think not.

2768 Q. And none of your convictions were based on the fact that the animal was dead?

A. Yes, sir.

Q. This was after the dissection was made?

A. That was after the dissection—the dog was dead.

Q. You felt after the dissection there was no doubt about the death?

A. No, sir.

Q. Did you have any doubt before the dissection?

2769 A. No, I had no doubt at all.

Q. Did you have any doubt in this instance?

A. I had no doubt.

Q. Is there any doubt expressed?

A. No, sir, I feel none.

Q. Is there anything else there that would throw doubt upon the experiment?

A. No, sir, I do not think there is—there is not; no, sir, or I would have mentioned it, probably.

2770 Q. Let me read this to you. This experiment is divided up into 4th, 5th, 6th, 7th and 8th, in which the same dog is repeated. Under the 6th experiment: "Same dog, same connections; relay used as in previous trial; continuous current E. M. F.: 600 volts; current, 0.1 ampere; circuit closed at 10.04 P. M.; dog howled and struggled, but unhurt.

A. Up to 1,000 volts; 5th, 6th, 8th, 100 and 1,000 volts.

Q. Eight hundred volts. We have it right here.

"Relay; contacts apparently poor, as lamps did not 2771
start immediately as in previous trials with same
dog;" is there anything of that there?

A. No, sir; there is nothing of that here.

Q. Circuit closed at 10.12 P. M. Dog howled and struggled violently for two minutes; then apparently died. Dog immediately dissected by Dr. Peterson, and heart still pulsating; peristoltic action of intestines continued, and frequent quiverings of muscular tissues noticed. Heart continued pulsating until 10.50. 2772
Opinion expressed by Dr. Peterson that artificial respiration would have saved its life if resorted to immediately after moment of apparent death." Does anything of that kind occur?

A. No, sir; not in my notes.

Q. That would have been a circumstance that you would have noted, wouldn't it?

A. If the doctor had expressed it to me.

Q. But he was there dissecting in your presence, wasn't he? 2773

A. No, he did not say that to me in my presence; he dissected it apart; if he had said that I would have noted that.

Q. That would have been an important factor?

A. Of course.

Q. That tends to cast doubt upon that experiment, don't it; this alleged statement of Dr. Peterson's?

A. The alleged statement of Dr. Peterson's tends to show that the dog might not have been thoroughly 2774
dead.

Q. Not thoroughly, partially dead?

A. Yes, sir.

Q. Electrically dead, but before dissection—not completely dead?

A. It throws doubt upon it.

Q. You knew nothing of that?

A. No, sir.

Q. You were taking careful notes of the transaction?

2775 A. I was taking careful notes of the electrical transaction.

Q. The purpose of the experiment was to show whether it killed or not?

A. No.

Q. What was the purpose?

A. My purpose was to find out at what voltage the respiration ceased; beyond that I knew no more.

Q. By "respiration ceased" you mean death, don't you? 2776

A. No, it does not follow at all.

Q. And when you are talking about death as the result of electrical contact, do you mean the suspension of respiration or the bona-fide death?

A. I mean real death; but the doctor was there to decide it.

Q. Do you mean to say it was to see whether respiration was affected or death was produced?

A. When I was there I was simply there to carry 2777 out the experiment that was desired.

Q. What experiment? Wasn't it to determine the influence of electricity to kill?

A. Yes, sir.

Q. You made those careful notes for that purpose?

A. Yes; I supposed it was so when the doctor said it was dead.

Q. Now, do you mean to say that, so far as all your notes are concerned, you have no idea whatever as to 2778 the condition of the animal when it was taken out, beyond the fact that you thought the respiration had ceased?

A. At the time, but I know from other recollections that suspended animation could not have been possible.

Q. As to this dog case, why did you make an exception of that?

A. In this case I did not know that.

Q. Are your notes as reliable in every case as they are in this?

A. My recollection supplements my notes. 2779

Q. Don't your recollection supplement it here?

A. No, because the doctor did not mention it to me.

Q. When did you take those notes?

A. They were taken roughly at the time and copied out the next day.

Q. Dr. Peterson saw you taking notes?

A. He did.

Q. He knew you were there to take notes? 2780

A. He did.

Q. Now, you say nothing was said to you as to whether the dog was killed?

A. To my recollection nothing was said.

Q. You are certain that if anything had been said you would have put it down on your notes?

A. I suppose so.

Q. If you were only taking notes of what you thought were worth while, that is one thing, and if you were taking notes of everything that transpired for the 2781 purpose of preserving that is another thing What were you doing?

A. I was making a record.

Q. Were you making a record for the purpose of making a complete and reliable record?

A. To the best of my belief.

Q. And everything of this character you noticed you noted down?

A. I think I did. 2782

Q. Where did Dr. Peterson dissect these dogs?

A. In the chemical laboratory.

Q. How far is that from where you were?

A. About fifty yards.

Q. 150 feet?

A. Yes, sir.

Q. He was within your sight?

A. No.

Q. Is there a partition?

2783 A. No, sir; distinct building.

Q. When he came back he made no report of that character?

A. I recollect none.

Q. Do you know of anybody to whom he did make such a report?

A. I presume, as it is mentioned there, that it was made to Mr. Brown.

Q. I ask you if you know?

2784 A. I know not.

Q. Can you understand how it is that so many cases in which the continuous current was used proved fatal are omitted here?

A. I do not know of any.

Q Do you know of any cases that proved fatal—have you any cases there that proved fatal?

A. Yes, one.

Q. Continuous current?

A. Yes, this one.

2785 Q. Any other case?

A. I don't know—no, the others I haven't read.

Q. Will you look at that book?

A. Yes.

Q. Will you oblige me by looking at that book and telling me how many of the cases which terminated fatally are mentioned in this book—of continuous current?

A. Oh, yes.

2786 Q. If I leave this book with you will you compare it at recess?

A. I will do that.

Q. If you will do that it will save my asking you a number of questions. Now, let me ask you a question: You are a practical electrician?

A. I am.

Q. And you sit at the feet of Mr. Edison, figuratively speaking.

A. Yes.

Q. Figuratively speaking, you sit at his feet? 2787

A. Yes, figuratively speaking.

Q. You can tell pretty much what an electric current would do?

A. Yes, sir.

Q. To a certain extent?

A. To a certain extent, yes.

Q. You don't claim to be a pathologist, do you?

A. No, sir.

Q. Nor an anatomist, do you? 2788

A. No, sir.

Q. Nor to understand, as Mr. Brown states, the effect of electricity upon the human system?

A. I don't know what Mr. Brown said. I don't claim to be a pathologist?

Q. You are not quite as extensive an expert as that?

A. No.

Q. Now, Mr. Kennelly, could you generate an artificial current by artificial means that would tear the 2789 shoe off the Referee's foot—I mention his shoes because they seem to be the best in the room?

A. No, sir; I could not do that.

Q. That is not within the capacity of electrical research and knowledge to tear that shoe off?

A. No, sir; I believe not.

Q. Now, I will put you another question. Mr. Franklin Pope here used an illustration which I will adopt for the purpose of this question. Could you gen- 2790 erate an electric current by artificial means that would shatter a broomstick?

A. No, sir; I could not.

Q. Could anybody else, even Mr. Brown?

A. No, sir; I don't know anybody that could shatter a broomstick by an electrical current.

Q. If you knew of a man receiving a thunderbolt upon his chest which penetrated through a coat, and vest, and a shirt—undergarments, and burned on the

2791 front of his body a pathway four inches wide, and came around here on his side, down his leg and in behind the knee, tearing the clothes in its passage, and going down to his feet, tearing off the shoe completely, and passing from the right foot to the left foot about the instep and tearing off the shoe there; would that represent to you an electrical energy of greater power than any that could be generated by artificial means?

A. It would.

2792 Q. Now, if you were told of a man receiving that thunderbolt in that way, what would you suppose would happen to him?

A. I should say he would be very much frightened.

Q. Would you think he would be no more than frightened?

A. He might not be; he might not be more than frightened.

Q. Would not the tearing of these clothes represent a greater power than you could generate?

2793 A. No, not necessarily.

Q. What do you mean by not necessarily?

A. Because there is no evidence in the case that you have mentioned that the current entered his body at all.

Q. It struck his skin?

A. It may be, but striking the skin is not entering the body.

Q. Is that true of all electrical currents, that the
2794 striking of the skin is no evidence of its entering the body?

A. The mere fact of striking the skin is not evidence in itself that it enters the body.

Q. Even though it passes down the skin, and, burning the hair upon the breast, tears off substances which you could not destroy—which you could not part by any means known—that is in evidence—that it entered the body at all?

A. No, sir.

Q. What would you consider would be evidence of 2795
its entering the body?

A. Damage to the internal structure?

Q. And you couldn't tell anything about the man until you had examined the internal structure to see that it got in?

A. Not until I saw him or somebody made a report to that effect.

Q. You would have to see the inside and see for yourself? 2796

A. Yes, or receive the news from some other person.

Q. Now, a contact between the electrical current and the skin is not evidence that it passes through the body?

A. The mere fact of a contact between the electrodes and the skin is in itself no evidence that a current has been passed through the body.

Q. Even if there is a burning, it is not evidence that the current has passed through the skin?

A. The collateral conditions under which the 2797
experiment was made would furnish very decided evidence in some cases that the current had passed through.

Q. Now, suppose that the effect of that blow was to paralyze the man and leave him paralyzed for 20 days; what would you think of the electrical energy there?

A. I would think that a certain amount had passed through his body.

Q. Wouldn't you think that a great deal? 2798

A. I don't know; the effect would be a great deal, but the quantity I don't know.

Q. You could not judge the quantity by the effect?

A. In this particular instance of lightning, no.

Q. Could you in any other way?

A. To a great extent, yes.

Q. Suppose for a moment a man was paralyzed by contact with two electrodes scientifically applied—as

2799 scientifically, even, as you or Mr. Edison could apply them—you saw him a short time afterward, and you knew that he was paralyzed: would that give you an idea of how much electricity he had received?

A. Yes.

Q. Let us assume that Mr. Poste is paralyzed from here down (indicating) and he had been so for 10 days; how much would you suppose that he had received?

A. I would suppose that he had received something 2800 like one-tenth of an ampere of current—of that portion at least.

Q. How do you fix that amount; is it purely a guess?

A. Merely from the behavior of animals in such cases.

Q. That is simply a scientific guess?

A. Yes, a scientific guess.

Q. When it comes down to that, I suppose guessing is open to all of us?

2801 A. Yes, sir.

Mr. Cockran:

I will leave you this book for the purpose of making the comparison.

Recess until 2.15 P. M.

2802 NEW YORK, July 23, 1889.

After recess.

By Mr. Cockran:

Q. Which of these experiments have been omitted?

A. No experiments have been omitted.

Q. Have they all been described in that book?

A. The pamphlet contains some of the experiments described in the book.

Q. I ask you which have been omitted from that book? 2803

A. Oh certain experiments which have not been published at all; the last one.

Q. There were some relating to the first experiment, were there not?

A. I don't know what you mean by "omitted." Some experiments were made without Mr. Brown being present at all; of course they would not appear in the pamphlet, which is Mr. Brown's pamphlet. 2804

Q. Are you sure Mr. Brown was not present?

A. I can make sure he was not present by looking at dates, etc.

Q. Why do you say now that he was not?

A. Because, to the best of my belief, he was not.

Q. Did you speak to Mr. Brown during recess?

A. I did.

Q. You compared notes?

A. Yes, sir; we did.

Q. Mr. Brown has refreshed your recollection; that is the amount of it? 2805

A. By no means; I compared everything myself.

Q. Let me see the pamphlet?

A. Yes; I haven't got it.

Mr. Cockran:

Where is that pamphlet?

Mr. Poste:

I think I handed it back to you, didn't I? 2806

Mr. Poste:

I don't remember your handing it back.

Q. What did he do with it?

Mr. Poste:

There is one in evidence here.

2807 Q. (Continuing.) Where is the one I gave you?

A. I don't know what was done with it; we had two; one belonged to Mr. Brown and one you handed to me.

Q. What did you do with it?

A. One of them was given to a gentleman; I don't know who he was.

Q. Where is he?

A. I don't know.

2808 Mr. Poste:

He is over at my office; he is one of the witnesses.

Mr. Cockran:

Is he here now?

Mr. Poste:

No.

2809 Mr. Brown:

If you want to use this one; it is the last one I have, I will hand it to you, if you will hand it back to me. One typographical error we found in my notes. It said "A. M." instead of "P. M." in one of those experiments. Otherwise they agree.

Q. Were there experiments at which Mr. Brown was not present?

2810 A. Yes, sir; there were.

Q. Of these first series, which you mentioned in this book, beginning with July 10th, were there experiments conducted at which Mr. Brown was not present?

A. There were, sir; quite a series of experiments.

Q. I see this is headed "Appendix. Experiments with electrical currents on dogs, by Harold P. Brown." Were there experiments then that Mr. Brown didn't conduct?

A. Yes, there were.

Q. Which were Mr. Brown's and which were not? 2811

A. Those that are mentioned in the text are Mr. Brown's, and those mentioned in the appendix in that book, giving the general results, were those which were not attended by him.

Q. Who attended at those at which he was not present?

A. I carried out the experiment for Mr. Edison, and certain other gentlemen were present from time to time.

Q. What other gentlemen? 2812

A. Mr. Batchelor, for example, and the various employees of the laboratory.

Q. There were no outside spectators?

A. Yes, on one occasion there was.

Q. Was Mr. Brown present on that occasion?

A. No.

Q. Now, when it speaks of these experiments by Harold P. Brown, he speaks of a series of experiments that are also mentioned in your notes? 2813

A. Yes.

Q. Have you got any separate caption on these, in your books, which would show which were Mr. Brown's and which were not?

A. It is not clearly shown.

Q. Is it shown dubiously, or doubtfully, or otherwise than clearly; is it shown at all?

A. Yes.

Q. Let us see how; give us an illustration of it?

A. I will: "Physiological experiments in the presence of Mr. Brown and Dr. Peterson." 2814

Q. It simply mentions them as spectators?

A. No.

Q. It doesn't mention them as Brown's?

A. No; they were all experiments made by Mr. Brown and Mr. Edison, in which I made the experiments.

Q. You made the experiments?

2815 A. Yes.

Q. Were there any of these animals which resisted your attention and refused to die?

A. I am not aware that there were.

Q. Well, wouldn't you know whether there was or not?

A. You have pointed out that it is barely possible that it might have escaped my knowledge.

Q. You were experimenting for the purpose of reaching a scientific deduction, and the scientific deduction that you were seeking to establish was whether or not electricity would fail to produce death. Can't you state whether they didn't all die? 2816

A. To the best of my belief they all died, but not being a pathologist or physiologist I am unable to swear that they all died.

Q. They all died, so far as you could tell?

A. Yes, sir.

Q. Every one of them?

2817 A. Yes, sir.

Q. I call your attention to animal No. 21—for the present I cannot call him anything else—Dog No. 21.

The Referee:

Give the date.

Witness:

What is the date, please?

2818

Q. It does not give the date; it says: "Details in Electrical Review, September 22d, 1888. Experiments conducted by Mr. A. E. Kennelly at the Edison laboratory."

A. Yes, is there no way of arriving at the date?

Q. It is an appendix?

A. If we can identify the dog.

Q. Look and see if you can't identify No. 21?

A. No. 21 (examining book) I think I can get it; 37½ pounds.

Q. Thirty.seven and a half pounds, and had 200,000 ohms resistance? 2819

A. Yes, sir: I read it here in your presence to-day.

Q. And he received the continuous and alternating currents both, and he is marked here as "unhurt:" is that the correct report of his experience?

A. I don't know whether it is correct or not until I look at my notes.

Q. "Experiments conducted by Mr. A. E. Kennelly;" that is this gentleman, is it not (pointing to witness)? 2820

Mr. Brown:

That is the medico-legal report that is printed?

Mr. Cockran:

I understand, but it is one of his experiments?

Mr. Brown:

Oh, yes. 2821

Q. Have you found it, Mr. Kennelly?

A. No, sir: I have not found it.

Q. Do you remember anything about it, at all?

A. I remember something about it; yes.

Q. I only ask you to look at your memorandum to refresh your recollection?

A. I remember the dog that had 200,000 ohms resistance. 2822

Q. Do you remember that you didn't kill him?

A. No, I remember that we did kill him.

Q. Well, he is marked "unhurt?"

A. I am very sorry: that is a double copy.

Q. Your recollection is that the dog was killed?

A. My recollection is that the dog was killed; yes.

Q. Are you clear about that?

A. I am not certain, but it is my belief the dog was killed.

2823 Q. I call your attention to the fact that he got the continuous current for 30 seconds, and the alternating current for 65 seconds?

A. Yes, I know; I remember the case; that dog was killed to the best of my belief; there is some mistake about that; he was unhurt by the continuous current; there is some mistake about the appearance of it in print; he was unhurt by the continuous, but subsequently succumbed to the alternating; that is my recollection of it.

2824 Q. Have you got it there; I would rather not have your recollection, if you have not got it clear?

A. I have got it somewhere, but not having the date I cannot trace it readily.

Mr. Brown:

Is your dog No. 21, Mr. Kennelly?

Witness:

2825 My dog is No. 21?

Mr. Cockran:

Your dog which was numbered 21?

Witness:

It can't be numbered in that way; my dog No. 21 is different; that is purely a local number.

2826 Q. Take the dog No. 19?

A. Very well.

Q. It might be your Dog No. 19, perhaps?

A. All right; yes, it is.

Q. Was he killed—

A. Wait a moment—yes, he was killed; he was unhurt by the continuous but he was killed by the alternating, and that is a misprint which has come from the double copy.

Q. Just describe to us how he was killed?

A. Certainly, resistance 200,000 ohms; wetted bandages thoroughly and repeated this— 2827

Q. What was his weight?

A. Weight was $37\frac{1}{2}$ pounds; length 32 inches; height 18 inches.

Q. We have not got his length and height?

A. That identifies him; he was the only dog that had so high a resistance.

Q. How do you account for the height of his resistance?

A. I was unable to account for it at all; he was very shaggy; I suppose we couldn't get good contact through his hair. 2828

Q. That was your supposition?

A. That was my supposition.

Q. At what degree of the alternating current did he expire?

A. At 504 volts.

Q. Well, the height that is given here is 100 volts?

A. We gave him 100 volts first. 2829

Q. That didn't kill him?

A. That didn't kill him; no, sir.

Q. Then you gave him 500 volts?

A. Yes.

Q. How many seconds?

A. Thirty seconds.

Q. He had 100 volts for 65 seconds?

A. Yes.

Q. Did you give him anything between that?

A. Yes, sir. 2830

Q. Then you gave him 500 volts for 30 seconds?

A. Yes, sir.

Q. At the end of the 30 seconds he died?

A. Yes, sir.

By the Referee:

Q. What was the resistance after death?

A. Two thousand nine hundred volts.

2831 By Mr. Cockran:

Q. He had the alternating current altogether for 95 seconds?

A. That is so.

Q. Whereas, he didn't have the continuous current more than 30 seconds?

A. That is so; yes.

Q. The continuous current didn't have the same show at him that the alternating current had?

2832 A. Yes; the continuous current was 300 and the alternating 500 at the first time.

Q. But he didn't have 500 ohms continuous current?

A. No, sir.

Q. I ask you now if he didn't—if the alternating current didn't get a better show at him than the continuous current?

A. He was more exposed to the alternating current than he was to the direct current.

2833 Q. Than he was to the direct current?

A. Yes.

Q. Now, was there any note taken of the age of these animals?

A. No.

Q. Was there of any of the animals—the calves, horses, or anything else?

A. No.

Q. Where did you find those animals?

2834 A. The dogs were found in the town; the boys brought them.

Q. Did the boys bring them in the interest of science, or for 50 cents apiece?

A. The boys brought them for 25 cents apiece.

Q. You had no knowledge as to whether the dogs—what conditions of life they were taken from, whether they were well-fed dogs or dogs that had subsisted from chance meals; dogs that lived by their wits?

A. We took the dogs as they were brought. 2835

Q. Without any knowledge as to how old they were?

A. We asked no questions.

Q. Did you inspect their teeth?

A. No, sir.

Q. You didn't even put a question to the dog?

A. No; we didn't even put a question to the dog.

Q. How about the horses?

A. The horses were brought by somebody else. 2836

Q. By whom?

A. I don't know by whom.

Q. Do you know how old they were?

A. No.

Q. Wouldn't that have a very strong effect upon an experiment—wouldn't it have an important effect as to whether the horse was an old or a young horse?

A. Well, the horse was photographed.

Q. But the photograph wouldn't tell his age?

A. No, but it would give a general idea as to the horse. 2837

Q. Do you think you could tell a horse's age by a photograph?

A. I could tell as much about a horse by examining his photograph as I could by an inspection of the animal.

Q. You have never bought or sold horses?

A. No, I never did.

Q. And to you it was perfectly blank matter whether the horse was a three-year-old or whether he was 23 years old? 2838

A. It was, so far as the experiment went itself, indifferent. Of course, the vitality was sometimes measured.

Q. How did you measure its vitality?

A. I didn't measure it; we estimated it.

Q. How did you estimate it?

A. Seeing whether it looked fresh or not.

2839 Q. Whether it looked fresh? Don't you know that a young horse that hadn't been groomed for a week wouldn't look as fresh as a horse 19 years old that was carefully groomed every day?

A. Yes, I know that, but allowance would be made for that.

Q. Did you make an allowance?

A. To the best of my belief we made such allowances as we could.

2840 Q. Is not the age of a horse or any animal that you have experimented upon one of the crucial tests that you apply in order to ascertain what degree of electrical energy would be necessary to kill him? A question of power in the horse, or any animal?

A. I dare say that age is quite a considerable factor.

Q. You know that a horse that is old and decrepit would be likely to die from any cause easier than a horse that was vigorous?

2841 A. Yes; all the horses were not very ancient specimens; how old they were exactly I don't know, but they were not very old.

Q. Why do you say ancient? How could you tell the age of a horse?

A. By his general appearance.

Q. What do you mean? Just give us a general idea how you could tell by his appearance; did you begin with his tail?

2842 A. I began with the end which came first.

Q. And if he was in a stall the tail would naturally be the first thing you would commence on?

A. That is so.

Q. And then you would gradually work up to his ears?

A. Yes, sir.

Q. What evidence as to age would you find on the passage?

A. Nothing I could measure.

Q. Now, Mr. Kennelly, do you mean to say you know anything about how old that horse was, or that you know nothing about it whatever? 2843

A. I don't know, sir, what age the horse was, but he didn't look like an old horse; that is all I can tell you.

Q. I have known very expert men to be puzzled as to the age of a horse?

A. I don't know anything about horses, sir.

Q. Why didn't you say that you don't know anything about it. That would save those questions? 2844

A. I have; I will, sir.

Q. How many horses were experimented on altogether?

A. Two horses.

Q. And they were purchased by somebody for the purpose of experimenting?

A. They were; yes.

Q. Do you know who purchased them?

A. No. 2845

Q. Do you know where he got them?

A. I do not.

Q. Now, there is a test which might be of some use in ascertaining his age, that is the price of him; do you know that?

A. No, I know what we had to pay for him to get rid of him.

Q. Did it really cost more to get rid of them than to get them?

A. I don't know; I didn't pay for them. 2846

Q. That would have a strong bearing upon the age of a horse among experts. Mr. Kennelly, you have given us an elaborate table of the resistance of your employees, who were in the laboratory; I presume they were all your employees that you experimented upon?

A. They were; yes.

Q. Are you sure that if you put the same man back

2847 into the instrument again, or subjected him to the instrument, that he would show the same resistance that he showed at the first test?

A. I cannot swear to it until I have tried it.

Q. Why didn't you try that?

A. It escaped me; I didn't think it at all likely and the idea escaped all of us.

Q. We had some evidence here—you followed these proceedings here; didn't you?

2848 A. No, not at all closely; I just saw one or two.

Q. Didn't you make these experiments with the view of testifying here?

A. I made them at Mr. Edison's request.

Q. I know; didn't you make the experiments with a view of testifying here?

A. I did know that.

Q. You have told me—I think this forenoon—that you had learned that it was testified to here, that the same man, subjected to the same measurement, showed

2849 different degrees of resistance upon different occasions?

A. Yes, sir.

Q. Well, now didn't that occur to you as being a subject to be inquired into in the investigations?

A. No?

Q. Why?

A. Because the results that I saw mentioned in the paper were so discordant and so apparently unreliable that I didn't pay any further attention to it.

2850 Q There was a reporter here, among others, who was experimented on, and he gave his experience, and there was one of the counsel who showed a resistance, I believe, varying all the way from 500 to 1,000 on application made in your own laboratory?

A. I don't know that; I was not there; I don't know anything about that.

Q. Don't you know that Mr. Brown was there, whose autograph is on this book?

A. . Was where?

Q. At your laboratory; making these experiments? 2851

A. I don't know that he made them; I know he was there; I don't know who measured them—who made them.

Q. Don't you know that it was for the purpose of relating them here and testifying to them?

A. I don't know anything about that visit; I was not there; I only heard that Mr. Brown and several other gentlemen—lawyers and other gentlemen—had been present at the laboratory. 2852

Q. You can't tell us now whether the same man you put into the machine, or subjected to the machine by the Wheatstone bridge measurement, half an hour after the first test would show the same measurement, or whether he would show twice as much; you can't tell us that?

A. I can't tell it to you absolutely; but I can tell it to you with a very high degree of probability.

Q. You could have given it to us with accuracy if you had taken the trouble? 2853

A. Yes, if I had done so; if I had thought of it.

Q. You didn't think it necessary to do so?

A. No, I did not.

Q. Is there anything in the ascertainment of the resistance that would show you how much voltage it would take to kill—for instance, would be likely to kill?

A. Yes, there is.

Q. Now, the more resistance, I suppose the more voltage would be necessary? 2854

A. Yes.

Q. That is your general impression?

A. Yes; that is my general impression.

Q. And do you base that upon any scientific tests?

A. I base that, not only upon experiments, but upon common sense.

Q. Common sense as applied to electricity is, as we find it, a little delusive. I don't know whether you have ever found that out or not?

2855 A. I don't think common sense is ever delusive.

The Referee:

The difficulty is that common sense is simply the sense of the party that is talking.

Mr. Cockran:

I want to see Mr. Kennelly's common sense now.

2856 Q. Do you judge by common sense, rather than by experiment, that the higher the resistance the more voltage would be necessary to kill?

A. Yes.

Q. Have you found that conclusion of common sense to be borne out by the experiment that you have made?

A. On the average, yes; I believe so.

Q. I point to you here Dog No. 7, mentioned on page 19—No. 8, weighing 56 pounds, ohms of resist-
2857 ance 27,500, who died with a voltage of 160 in five seconds?

A. Yes, sir.

Q. Taking that for a proposition, how long do you think it ought to take to kill a dog weighing 16 pounds; or how many volts ought to kill a dog weighing 10 pounds with ohms of resistance amounting to 7,500?

A. I don't know that I can say from those figures alone; I can't judge anything from those figures alone.

2858 Q. I understood you to say a moment ago that, according to the ohms of resistance, you could make an estimate as to the quantity of voltage which would be necessary to kill?

A. Yes, sir.

Q. Now, I give an instance in which a dog weighing 56 pounds, with 27,500 ohms of resistance, died in five minutes, with a voltage of 160?

A. Yes, sir.

Q. I now ask you, on that basis how long it would take—how many volts would be necessary to kill a dog who would show 5,000 ohms of resistance in the same space—more or less volts? 2859

A. These data are not sufficient—not sufficient to make a conclusion.

Q. I thought you said the ohms of resistance were enough; I am giving you those, am I not?

A. The ohms of resistance of the dog proper, but probably that 27,500 means very much more than the dog proper.

Q. Does it mean the dog improper? 2860

A. Yes.

Q. Will you tell me how the impropriety of the dog shows in ohms?

A. The impropriety lay evidently in the contact.

Q. Why do you assume that there is this variation and the impropriety of the contact in one that there is not in the other?

A. Because the resistance falls invariably after death. 2861

Q. This is before death?

A. Just so.

Q. We will take two dogs which had the same resistance before death, both measured by the same machine?

A. I don't say that.

Q. I say it: I say how much voltage would it take to kill a dog with 7,500 ohms of resistance? I am asking you to give me the ohms that it would take to kill a dog? 2862

A. I don't say the dog had 27,500.

Q. I say it.

A. Upon that basis I cannot work it; I can't calculate it.

Q. You say if you get the ohms of resistance of a dog, or of any other living organism, you can estimate from that the number of volts that are necessary to kill?

2863 A. Yes, sir.

Q. Now, I give you the number of ohms that are necessary to kill one dog?

A. But you have not given me the resistance of the dog.

Q. I have given it to you?

A. No, sir; you have given me the resistance of the dog and connections.

Q. How do you know?

2864 A. I know it is the dog and connections.

Q. How do you know it?

A. Because that was measured so.

Q. How do you know it was measured so?

A. I measured it myself.

Q. These were with your own measurements?

A. These were with my own measurements; I measured them myself.

Q. Didn't you measure the same dogs with the same resistance?

2865 A. I did.

Q. Couldn't you allow for that?

A. I can assume that a dog might come down after death to 2,900.

Q. I didn't ask you what occurred after death, because it would not take very much volts to kill him after he was dead; what I want to know is what it would take to kill him before he was dead, I having given you the number of volts that it would take to kill another dog?

2866 A. You have not given me all the data necessary.

Q. Let us assume it, just for the purpose of making a measurement?

A. Oh, yes; you assume.

Q. I will assume?

A. Assume that the resistance of the dog was 27,500?

Q. Let us assume now that a dog showing 7,500 ohms can be killed by 250 volts in five seconds, how

long would it take to kill a dog with 50,000 ohms of 2867
resistance: that can be reduced to an experiment, if you say it is a sound rule?

A. Accurately, I don't know: I can only estimate it.

Q. Estimate it?

A. I presume it would take longer.

Q. You cannot estimate it?

A. I can only estimate it would take longer: that is all I know.

Q. Now, you say you can only guess at it? 2868

A. That is all; yes, sir.

Q. So that the number of ohms of resistance would not give you any definite information upon the subject at all?

A. The number of ohms indicated would only give you definite knowledge, but I knew the exact conditions under which that measurement was taken.

Q. Now, I assume that you have the same conditions—now, I will give you the same conditions: I
will furnish you with two dogs, give you your own 2869
bridge, your own machinery, and if you ascertain the resistance of these two dogs, and find what will kill one, can you positively say what will kill the other?

A. Positively; of course I cannot.

Q. That holds equally true of man; don't it?

A. I don't know that it is so.

Q. That is all right; you don't know; that is the exact condition in which we are now, and in which, I
suppose, we will part. Mr. Kennelly, you say that the 2870
ohms of resistance will invariably decrease after death?

A. I say it invariably decreased in the cases I have measured.

Q. Is that true now; are you sure about that: now be sure about it?

A. To the best of my recollection, it is so.

Q. Is there any given law upon this subject that you could annunciate at all, or is this simply scientific speculation?

2871 A. I said, that according to the measurements I have made, to the number of 20 or 30, the resistance, to the best of my belief, has always gone down after death.

Q. Now, I repeat my question: Is your conclusion as to the fact that the resistance decreases after death anything more than scientific speculation?

A. It is, certainly; I measured it.

Q. Well, outside of these measurements—by the 2872 aid of these measurements—you made that general rule—you deduce that general rule?

A. I deduce that general rule.

Q. That is all.

A. That is all.

Q. It is simply scientific speculation?

A. No, it is a demonstration to me.

Q. Now, look at your own experiment No. 22 and see whether that demonstration of yours holds good even to yourself?

2873 A. No. 22?

Q. Yes, and see whether that dog didn't show more strength, as it may seem, more resistance after death than he did before. I am not sure about this, but as I have it on my notes I think he shows a higher resistance after death than he did before?

A. No, the resistance is less after death than it is before.

Q. What was it before death?

2874 A. 9,700 resistance, and resistance after death 8,000.

Q. 8,000 ohms; are you sure it is 9,700?

A. I am quite sure that it is.

Q. Now, Mr. Kennelly, is that a proportionate decrease in all animals; is it the same decrease—the proportion of decrease?

A. Accurately, I don't know.

Q. You don't know?

A. No.

Q. Now, you have made these experiments, and from these you deduce a general rule that the animal shows less resistance after death than before? 2875

A. Yes.

Q. Now, by less resistance do you mean that it is a better conductor?

A. I do.

Q. That is to say, a corpse, you think, would be a better conductor than a live man?

A. I say that a man killed by electricity, from these experiments, would have less resistance the moment he was dead than before he was killed. 2876

Q. Would you apply that to any other cause of death?

A. I have no means of knowing myself whether it is so with any other cause of death.

Q. Do you attribute it to the fact that he is charged with electricity somewhat?

A. I don't know what to attribute it to.

Q. You don't? 2877

A. No.

Q. It is simply a phenomena to you?

A. No, it is an observed fact.

Q. Why isn't it a phenomena, since you cannot give us the cause of it?

A. Not a phenomena, an observed fact; it amounts to something; I can give you a supposition of it.

Q. That brings me back to the original proposition, it is a phenomena: why is it a phenomena? 2878

A. The definite cause is not certainly known.

Q. Exactly, and, therefore, don't you think that I would be justified in calling it a phenomena that you could not explain?

A. Yes, in that sense.

Q. Now, if you will allow me to take up that table?

A. I haven't got the table.

Q. Where is it? Did you answer my question as to whether, if I gave you the resistance of the dog, you

2879 could calculate the resistance of another dog by getting their different resistances? Did you answer that question?

A. I don't understand the question.

Q. Suppose you get the resistance of the dog that is killed by electricity?

A. When he is dead or when he is alive?

Q. When he is alive.

A. Yes.

2880 Q. And then I take another dog and measure him, or let you measure him, according to your plan of the Wheatstone bridge, and you find out the degree of resistance, could you then calculate the proportion of voltage that he would require to the proportion that was used in the case of the other dog?

A. If the resistance were measured under precisely the same conditions, then I should be warranted in the belief that it would require a corresponding greater or less voltage.

2881 Q. Oh well, I am not speaking about what you would be warranted in believing; can you give us that as a general law, upon which you would be willing to base your reputation as an expert electrician, for then we could test it?

A. Yes, I think that holds good, that the voltage which will produce death, assuming animals to be similar in constitution, and the resistance is measured under the same conditions, will be greater or less to

2882 correspond.

Q. There you give it away, assuming an animal would be the same in constitution; yes, but did you ever know two animals to be of the same constitution?

A. Exactly the same; of course I don't know.

Q. Do you believe that any two animals living, whether four-footed or two-footed have got precisely the same constitutions?

A. Exactly the same constitutions I suppose no two have, but they are very close together; in 10,000 you will find them very much alike.

Q. Are you sure of that? 2883

A. I have it on pretty good authority.

Q. What is your authority?

A. I have it—

Q. What is your authority, I say?

A. Men who have made this matter a specialty.

Q. Well, give us their names?

A. I have it on the authority of Buffon, Agace and Chamber; any of those books will show you that animals, taken in the aggregate, are very similar; but 2884 when taken in two or three specimens, they are very different.

Q. Why, certainly; that is to say the average would be about the same; but taking any two specimens you would find it very different?

A. They may be very different.

Q. That is exactly what I mean. Now, Mr. Kennelly, you would have to allow for these differences of resistance in making your estimates, wouldn't you?

A. I suppose that a certain allowance should be 2885 made for it.

Q. And unless you knew what the constitution was you would not know how to make the allowance?

A. Yes, a certain amount of allowance; I do not know how much.

Q. That is what I want to find out. Understand me. I put you a question. You say that you think if the animals were of the same constitution the same degree of voltage would probably kill—that you were 2886 warranted in that belief—you have stated it as your belief?

A. Yes.

Q. Now, I ask you if that isn't an important factor, the difference in constitution?

A. If you prove that a difference in constitution does exist.

Q. Suppose I don't prove anything about it?

A. Then I have no means of answering accurately.

2887 Q. And, therefore, you don't know anything about it—therefore your answer is vague in that respect?

A. In that respect it has that element of vagueness.

Q. In the case of this gentleman, Mr. Lehmann—Mr. Batchelor—who showed 950 ohms of resistance when you tested him first, when you put him through some other tests he ran up to 100,000?

A. He did not run to—

Q. How high did he go?

2888 A. I don't know; I presume he was the same.

Q. They ran some of them up to 200,000?

A. No, not the persons.

Q. What went up?

A. The resistance between the electrodes as they were placed upon the individual and connections.

' Q. How much belonged to the individual and how much to the connection?

A. It depends upon the method of making the connection.

2889 Q. When you get a gentleman showing the surprising wealth in resistance of 400,000 ohms, how much belonged to him and how much to the instrument?

A. I should say that about 99 per cent. belonged—more than 90 per cent. belonged to the connections and the balance to him.

Q. Why did you say that?

A. From having measured a large number of persons.

2890 Q. But in every instance where you measured a person under these conditions, the original measurements changed in a surprising way, and you got results that were vastly greater. Now I want to know if you took any steps to ascertain whether that was a change in the resistance or the man, or whether it was simply a resistance developed by the instrument?

A. I did.

Q. What steps did you take?

A. The steps are given here.

Q. Let us have them? 2891

A. Yes.

Q. Let us take the man showing 400,000 ohms resistance, and let us see how much belonged to the instrument and how much to the man?

A. Yes, here it is. You have here a man with 400,000 ohms holding two wires in his dry hands. The same man with his hands in jars of water—plain water, which is not a very good conducter, has 2,650. If he had had his hands in caustic potash—you have his measure there. 2892

By Mr. Poste:

Q. Is the same measurement there?

A. The same measurement is there, taken at a different time.

By Mr. Cockran:

Q. Go on then. If he had his hands in the same position— 2893

A. (Interrupting.) Then it would have been correspondingly less low, because I took 30 men—40 men with their hands immersed in zinc sulphate and caustic potash, and the resistance was, on the average, 30 per cent. less in caustic potash than in zinc sulphate.

Q. Thirty per cent. less?

A. Thirty per cent less in caustic potash.

Q. What did he have his hands dipped in when these measurements were taken? 2894

A. I presume the man had the same resistance throughout.

Q. No, no; but what did he have his hands dipped in?

A. In that measurement, caustic potash.

Q. Caustic potash, and that is the lowest resistance?

A. The lowest we have obtained; but you might make it much less.

2895 Q. By getting some other substances?

A. No substance whatever, but by making the area of contact much larger. I have here a measurement of one man with the resistance, with his fingers just dipped up to the first phalanx, then the second, then the third and the ulnarcondile.

Q. What happened him after it reached the ulnarcondile?

A. The resistance came down more and more as he exposed his fingers to the liquid. 2896

Q. Just shows that the resistance measured by the bridge depends largely upon the way the man is approached?

A. Depends very largely upon the way in which the contact is made with the man.

Q. And you think from these experiments that you made that this degree of resistance that you register here is a reliable one?

A. No; I say that it is reliable under these particular conditions in which it was made. 2897

Q. And you could change that man's resistance pretty much as you like by changing the conditions under which it was made?

A. You couldn't have changed the man's resistance; you could have changed the resistance of the electrodes placed on the man.

Q. Could you change the measurements recorded by the Wheatstone bridge; that is what I want to get at? 2898

A. Yes; the measurements of the resistance between the electrodes.

Q. My question that you haven't answered yet, Mr. Kennelly, was this: If you take the man with 400,000 ohms of resistance—

A. (Interrupting.) Yes.

Q. How do you measure the amount of resistance at the instrument and the amount of resistance of the man on that measurement?

A. You mean at the electrodes? 2899

Q. Yes?

A. At the electrodes in this way: From measurements of a man dipping his fingers, to a great or less extent, I got the area of the skin surfaces involved. I found that the resistance diminished fairly proportionately, in the ratio of the amount of skin surface that was involved, and from that I had the means of determining the resistance of the human body between the two arms and the resistance per unit surface of skin. 2900

Q. I do not exactly follow that. How did you make that out? Let us see how you—

A. Say that a man dips one square inch of skin into a certain solution.

Q. Yes.

A. One square inch of each could not—you may get the resistance—the resistance of one square inch of skin—but that is not the resistance of the human body. 2901

Q. That is, you go on and assume that the resistance will continue the same way?

A. I find that it is so practically.

Q. How do you know that it is so—how do you know that?

A. By a number of such experiments which agree with the surface of skin involved.

Q. How did you ever measure the complete surface of the skin and find out whether that was accurate? 2902

A. I took a man's glove—the man's glove and marked off the points at which he made the insertion and cut the glove up.

Q. And that was your experiment?

A. That was my experiment.

Q. You made your experiment by calculating the respective area of the glove?

A. The area of the immersion.

Q. Now, suppose it should be found that one of

2903 these men whom you subjected to this test, should, when subjected to the same test under precisely the same conditions, record a great difference in the resistance? What would become of your deductions?

A. I cannot suppose the case.

Q. Suppose the case; let us assume the case for a moment.

A. It is to me assuming an impossibility.

Q. Is it?

2904 A. Yes.

Q. You never knew anything about this until you tried the experiment the other day?

A. Oh, yes; I had made measurements of the human body years ago.

Q. In what way, Mr. Kennelly?

A. Under various conditions; finding out the resistance between the hands in vases of water or holding wires. I have made such experiments a long time ago.

2905 Q. To what extent have you made them?

A. Two or three individuals.

Q. You would not call that enough to demonstrate a fact—a scientific fact, would you?

A. Not to demonstrate it accurately.

Q. Of course not. The only time that you have made any experiments for the purpose of determining this result which you say you have reached, was day before yesterday, which was testified to by Mr. Edison?

2906 A. The vast amount of evidence has been obtained two years ago.

Q. And you never once subjected a man to test as to whether he would show the same resistance ten minutes after the first application?

A. No, I did not.

Q. I ask you now if it be possible that a man should show a great variation in his resistance between two different applications of the instrument, what would become of the theory then?

A. I cannot imagine it. 2907

Q. We have had it in evidence here upon tests taken in your laboratory?

A. Mr. Edison's laboratory?

Q. In Mr. Edison's laboratory?

A. In Mr. Edison's laboratory?

Q. Under the inspection of Mr. Harold P. Brown and another expert, in the presence of the Referee, and the same persons were subjected to precisely the same test, as far as it could be ascertained, and showed a difference in resistance? 2908

A. Are you sure of that?

Q. I only tell you what was testified to here, and all have agreed in it.

A. I recollect of no facts—I can make no deduction from it.

Q. Assuming that to be correct, would your deductions then be disturbed?

A. If I were to assume for the sake of argument that they were, then it would simply lead me to say 2909 that the conditions were not the same under which experiments were conducted.

Q. That is not assuming that at all, because you disregard one necessary assumption; I want you to assume it all. I want you to assume that the same person subjected to the same tests, and at intervals of a few minutes, showed different degrees of resistance. Wouldn't that upset your deductions if that were so?

A. No, I do not think it would upset my deductions, even then. 2910

Q. But your deductions are based upon a scale of measurements?

A. Yes, but you will allow that if—

Q. (Interrupting.) Now, if your measurements were not accurate, would your deductions remain the same?

A. If my measurements were inaccurate, my deductions would be inaccurate.

Q. That is just what I asked you now; now then—

2911 A. You asked me to assume that my measurements are inaccurate.

Q. I asked you to assume that they are unreliable, for the reason—

A. If you ask me to assume that my measurements are unreliable, I assume that my deductions are.

Q. I am not assuming that your measurements are not as accurate as could be made. I am casting no reflections upon your measurements, because I am
2912 very frank to say that so far as science can ascertain in the manner of this character, that you are abundantly able to do it, but I ask you to assume that the actual resistance shown by the person would vary under repeated applications of the same test. If that were so wouldn't that upset the deductions which you have reached?

A. If that be proven as to the degree that the variation be found, the deduction is affected.

Q. That is just what I wanted; Mr. Kennelly, you
2913 testified that when you were experimenting upon the horse, the Cardew voltmeter gave out?

A. Yes.

Q. What was the cause of that?

A. Because it had a voltage upon it which was excessive.

Q. What voltage did it have on?

A. We got as high as 1,000 volts.

Q. And the Cardew voltmeter could not register
2914 that safely?

A. It did register it, but it did not register it safely.

Q. It gave out before you reached it, didn't it?

A. Yes.

Q. And therefore it did not measure the full voltage because it gave out before it was reached?

A. No, it gave out when it was reached.

Q. Now, when you get a very high voltage, would that voltmeter be of any use, say when you use 1,000 volts?

A. A Cardew voltmeter? 2915

Q. Yes?

A. If there were measurements taken.

Q. Wouldn't it be likely to burn out again?

A. No, if precautions were taken to prevent accidents happening which did happen.

Q. What precautions? What accident happened outside of an excessive degree of voltage?

A. The accident which happened was this: That I had a high voltage in connection with the Cardew, 2916 and by mistake I left a piece of metal in the plug in the socket that I ought to have removed. Consequently how much current passed through the Cardew I do not know; but had I taken it out it would not have done that.

Q. That was it?

A. That was so.

Q. Then did you not apply another one with proper precautions; you discarded it immediately after that?

A. The Cardew was broken. 2917

Q. Did you have another one?

A. I repaired that one.

Q. But you did not have another voltmeter there?

A. Not then.

Q. Do you think a Cardew voltmeter could be successfully used in testing a very high voltage—1,000 to 1,500 volts?

A. Certainly, with necessary apparatus.

Q. What do you mean by necessary apparatus? 2918 My question was not whether it could be used with necessary apparatus; it was whether it could be used; whether it alone can be used?

A. Yes.

Q. It cannot be used above the voltage which it is intended for?

Q. You said, in answer to Mr. Poste, that at that point of contact with an electric wire, if there is a burning it is an evidence of imperfect contact?

2919 A. Yes.

Q. Is that a demonstrated fact, or simply a supposition?

A. It is certain.

Q. And in the case where men were killed and showed burns it showed imperfect contact?

A. Yes, it did.

Q. And wherever there is a burn that showed imperfect contact?

2920 A. It did.

Q. By whom has that been demonstrated—by what experiments?

A. It is demonstrated by the burn itself.

Q. How?

A. Because heat has been generated at the point of contact of the electrodes.

Q. And that shows imperfect contact?

A. Yes, it does.

Q. Won't there be heat at the point of contact when 2921 you handle an electric wire—heat from the wire itself?

A. The better the conductor the less the heat, and in perfect contact the heat vanishes.

Q. Yes, but when there is a very bad conductor the heat rises?

A. The heat rises.

Q. Suppose that the human body should prove a bad conductor, wouldn't that cause the heat to rise?

A. The heat will correspondingly take place in the 2922 human body.

Q. And wouldn't that cause a burn, no matter how good the contact?

A. No.

Q. Why?

A. Because it could not be sufficiently great to produce a burn.

Q. Are you sure of that?

A. I am sure of that.

Q. What degree of heat would be generated?

A. Give me it again and I will tell you. 2923

Q. Let us take a thousand volts, generated by a Westinghouse dynamo in full operation, and a man takes hold of the two poles?

A. The resistance in the man's circuit is how much?

Q. That I do not think anybody can tell. I give you a human being, and I say that he shows the burns and then I show an imperfect contact?

A. Will you not assume a value?

Q. I say that he shows burns, does that show imperfect contact? 2924

A. It does.

Q. No matter if he had hold of it with both hands?

A. No matter how he had hold, he had a bad contact.

Q. What do you call a good contact then?

A. A contact which will receive no resistance to the passage of a current through his body.

Q. Won't the skin offer resistance, no matter what the contact is? 2925

A. The skin will offer a certain amount of resistance.

Q. Isn't it a very strong resistance, generally?

A. It is sometimes, considerable.

Q. Well, now, wouldn't that be such an imperfect contact then as would cause a burn?

A. It is never so by experiment when the contact is properly made.

Q. Have you ever seen an experiment on the skin of a human being? 2926

A. No.

Q. Why do you use the word experiment?

A. I judge so from the animals we have tested.

Q. That is a different thing now. Now, Mr. Kennelly, I ask you if that is anything more than a deduction of yours—a belief; I repeat my question.

A. That is a deduction.

Q. That is not a demonstrated fact?

2927 A. No, that is not a demonstrated fact.

Q. Have you ever known an instance in which a man caught hold of an electric wire and got the current through his body that there was not a burn?

A. I never heard of it. Well, I won't say that I never heard; I do not remember any cases.

Q. In every instance there is a burn?

A. In every instance I remember there has been a burn.

2928 Q. When you say, then, there is an imperfect contact, you mean that the skin that came in contact with it was not a good conductor. Isn't that what you mean?

A. No.

Q. Then what do you mean by imperfect contact?

A. I mean that the resistance which was interposed between his living tissue and the metal from which he took that current was very high, and might have been made very many times lower by proper application.

2929 Q. What do you mean by proper application?

A. By immersing a sufficiently large surface of skin in a liquid solution of that character.

Q. That is simply a belief of yours again, isn't it?

A. No, I have proof of it.

Q. How have you proof of it?

A. By measuring different people in different conditions of immersion.

Q. Yes, but then you would reach the deduction that a burn would not occur there?
2930

A. I reached that deduction.

Q. Yes, but you have not seen that actually demonstrated upon?

A. But if I know the resistance on the surface of the body I know the quantity of heat which would be generated in a given time by a given current of strength.

Q. Now take the case of this dog that showed 200,000 ohms of resistance, what amount of heat was generated at the point of contact?

A. Taking the current strength, at a given figure, 2931 it is easy to find what it would be.

Q. Well, tell us how?

A. I have to get the current strength.

Q. Where is that book? Say 500 volts. Go on.

A. 500 volts would be the fortieth part of one ampere.

Q. What would be the heat generated there?

A. One four-hundredth part of an ampere.

Q. What heat would that be? 2932

A. One four-hundredth part of one ampere, passing through the resistance of 200,000 ohms, would be —

Q. Would it be hot enough to burn?

A. No, it would be sufficient to produce some burning, it might be sufficient to produce a little burn, but the heat would not be great; of course, the current was the same.

Q. A little burn?

A. Yes; but the total amount of heat would be very small. 2933

Q. If the heat was enough to burn it would be pretty great, wouldn't it?

A. Yes; locally.

Q. That doesn't tell me anything. I want to know whether it would burn? I think you said that it would.

A. I think very likely it might. Let me just work it out.

Q. Would working it out tell you whether it would 2934 burn or not?

A. Yes, it would.

Q. At what temperature would it burn?

A. I presume that you cannot burn the human body under the boiling point, anyhow.

Q. That is a presumption of yours; do you know that?

A. I know that no person can produce a burning unless he has a higher temperature than boiling water.

2935 Q. That is your belief about it?

A. That is my strong belief.

Q. And it is upon that theory that you work it out?

A. Yes, sir.

Q. Now, if that current was kept up long enough wouldn't it burn, no matter what you put upon it?

A. It does not follow.

Q. Wouldn't it, as a matter of fact?

2936 A. I don't know, unless you give me the condition.

Q. I say, take a human being—take yourself and make all the preparations you choose with your hand, or whatever other parts that you apply that electrode to and keep that current up, wouldn't it ultimately burn you?

A. A small current would not.

Q. I mean a current such as we are talking about here, from a Westinghouse dynamo?

A. What strength, for example?

2937 Q. 1,000 volts?

A. No; it would never burn me.

Q. It would never burn you?

A. No; you can hold it as long as you please.

Q. You can hold it as long as you please?

A. Provided my resistance remained constant.

Q. Supposing it did not?

A. Then it might produce other effects.

Q. Tell us what other effects. I have to test you
2938 again, Mr. Kennelly; you answered me on assumptions. Now, I ask you a simple question. You can prepare your hands in any way you like?

A. I don't know; if my resistance was constant it could not burn me.

Q. But would your resistance be likely to remain constant?

A. I do not know.

Q. Don't you know if it diminishes or not?

A. My resistance might come down during the application of the current.

Q. Would you undertake to say that no matter what preparation you may make with the two electrodes fastened to two parts of your body and a 1,000-volt current passed through you, that that would not burn you? 2939

A. I will undertake to say that it could not burn.

Q. Assuming that the resistance changed?

A. I will undertake to say that in the case of the resistance of animals—that is the only basis I have to work upon.

Q. Now, you are speaking of the knowledge you have from those experiments upon these animals? 2940

A. Yes, sir.

Q. They were covered with hair?

A. No; some of them were clipped.

Q. There was the hair?

A. There were the roots of the hair.

Q. Now, Mr. Kennelly, do we understand that all that you have been telling us about this was simply a deduction of yours from applications made to animals covered with hair? 2941

A. The greater part of it has been derived from experiments on animals.

Q. And not upon applications that have been made upon human beings?

A. We cannot expose a man to a very heavy current?

Q. You never have?

A. I never have.

Q. But from all you have seen every man that has got hold of it has got burnt, has he not? 2942

A. Yes.

Q. And the result is, that against this practical experience you have set up that theory, based upon experiments upon animals?

A. No, on one other point as well.

Q. Let us have that point now; let us understand it?

2943 A. That the temperatures of a liquid cannot rise above the boiling point as long as any liquid remains.

Q. Do you talk about a man as a liquid?

A. No; I speak about a liquid. Your question led me to assume a liquid connection.

Q. Now, let us have a liquid connection?

A. A liquid cannot rise above the boiling point, not so long as any liquid remains.

Q. How long does the liquid remain?

2944 A. That depends upon the amount of heat that has been generated.

Q. We are taking this dynamo all through; we are talking about that: that is the only one we have in evidence; could you start that upon a man and put anything you like upon him—all the liquid connections that you please, and he shows a resistance that you did not expect, and you go on and keep up the current under the language of the law, would not any liquid that you put there burn?

2945 A. In the course of weeks or months, certainly.

Q. Now, will you answer my question?

A. Yes, sir; certainly.

Q. Would it take as long as that?

A. It might take as long as that.

Q. Would it take an hour?

A. Under the conditions that you allow me to assume it would take much more than an hour.

Q. You take the conditions that I assume and not

2946 those that you assume. You say that you answer under one assumption—

The Referee:

He says under the conditions which you allowed him to assume.

Q. I don't think so; is that your answer?

A. That is my answer.

Q. I will have to put it again? I give you a sub-

ject; you put liquid connections on—how would you 2947
put them on? To start with I will give you a man.
Now, I assume that you would want to experiment
upon Mr. Poste—I do not like to assume that you are
experimenting upon me—what would you do with
him? Let us have a practical explanation of what
you would do: how would you work?

A. If I wanted to make a liquid connection with
Mr. Poste, I would ask him to put his hands in a jar
of caustic potash, as deep as possible. 2948

By the Referee:

Q. Solution?

A. Yes, sir, solution.

By Mr. Cockran:

Q. Now, he would take his hands out of that after a while?

A. I suppose he would ultimately take them out. 2949

Q. When would you make the connection? After he took them out or when he had them in?

A. When would I make the connection?

Q. When would you put the current through him?

A. The moment he put his hands in.

Q. Then you connect his hands while they were in this water?

A. Yes.

Q. And then he would hold the electrodes in his 2950
hand?

A. No, sir; the electrode would be surrounding him, it would be a liquid one.

Q. Would you make a liquid electrode?

A. I would make a liquid electrode.

Q. What liquid would it be?

A. For example, caustic-potash solution.

Q. How long would it take now, with a current of 1,000 volts, to heat that?

2951 A. Assuming his resistance to be 1,000 ohms, a thousand volts would take an indefinite time.

Q. Assuming it to be 100,000?

A. It would take a correspondingly much longer time.

Q. How long; give us an idea?

A. Centuries.

Q. It would take centuries to heat that?

A. It would.

2952 Q. With 1,000 volts?

A. With 1,000 volts and 100,000 ohms.

Q. Supposing you put a metal electrode on the back of his head and on his feet?

A. You must give me the resistance under those circumstances.

Q. Take his resistance as 2,500 ohms?

A. Then it would take a very long time indeed to heat the liquid up.

Q. How would you apply the liquid to the back of his head with a metal electrode? 2953

A. I assume that it would be done with a liquid electrode.

Q. Well, assume now that it is a metal electrode, like a cap, and you just put a sponge in there and saturate it and put it on his head; how long would that take?

A. Then it would take a less time.

Q. How long?

2954 A. I do not know without making experiments.

Q. Now, the liquid electrode itself, in which his hands would be immersed, you say it would take a long time to heat that?

A. Yes.

Q. With any power that might be guaranteed?

A. No, you increase the power indefinitely and you increase the heat indefinitely.

Q. Suppose you take 1,000 volts?

A. Yes.

Q. How long would it take to heat them? 2955

A. With the liquid connection you sponge off at the wrists?

Q. Yes.

A. It would take to heat it up to the boiling point —I suppose it would take about ten hours.

Q. Now, suppose you take 2,000 volts?

A. It would take them, I suppose, six hours.

Q. And the more you increase the voltage the more rapidly you will get this up to the boiling point? 2956

A. Yes.

Q. Is that the only way that heat could be conveyed to the body through this electrode?

A. I beg your pardon.

Q. Is that the only way that heat could be conveyed through the body?

A. No, there will be a certain amount of heat generated inside of his body.

Q. How long would it take before you got that going on him? 2957

A. I suppose he would never rise to the boiling point.

Q. Why?

A. Because the heat would be radiated off from the large surface of his body as fast as it could be supplied.

Q. You don't think he could be carbonized then?

A. Not until all the liquid was out; which would take a certain time.

Q. Do you agree with Mr. Edison that the result would be a mummification instead of a carbonization? 2958

A. I am inclined to think it would be a mummification.

Q. Do you really understand what the effect would be?

A. No, sir; how could I tell without seeing it done?

Mr. Cockran:

That is just exactly where I agree; that is exactly what I thought.

2959 *Re-direct examination* by Mr. Poste:

Q. I think there was a question which was put to you by Mr. Cockran this morning. I don't know if I could repeat it; it was as to the highest pressure which could be applied with safety without burning. Is there any explanation you desire to make in connection with that?

A. I answered that question under the impression that it was the highest voltage that could be applied to 2960 an ordinary man without giving so much current as to risk any burning, so that any voltage up to 4,000 volts could be employed with safety.

Q. Is there anything in regard to this Cardew voltmeter that you have not stated that you desire to state?

A. No, the Cardew voltmeter is a perfectly reliable piece of apparatus in the hands of those who use it properly.

2961 By the Referee:

Q. Just let me ask him a question. He spoke about putting on other appliances in connection with the meter. I do not care to know what they are, because we assume that you are telling us exactly what is true in that regard. Is there any appliances which, taken in connection with the Cardew voltmeter, would measure very high potential current?

A. There are.

2962 Q. Does that prevent it from burning out?

A. Yes: it simply prevents the current from being too strong.

Q. Prevents it from being too strong when it passes through the meter; do you know how strong it is?

A. By knowing the relative proportion of the wire inside the Cardew and the wire outside.

Q. That is subject to a mathematical calculation?

A. Yes, sir.

By Mr. Poste: 2963

Q. Now, in regard to dynamos being driven above their common capacity, have you any experiments in mind bearing upon that subject?

Mr. Cockran:

What is that?

Mr. Poste:

Driving up a dynamo above its common capacity. 2964

A. It may be in some instances carried to a very high degree.

Q. Have you any case in mind—practical instance?

A. Yes, sir; at Mr. Edison's laboratory there is a dynamo, an alternating current dynamo, which is intended to supply 100 volts; that is to say, a mean voltage of 100 steadily, and we have obtained from that dynamo, without any other apparatus, 1,000. 2965

Q. How?

A. By slightly altering the commutator machine, the rings which allow the current to pass and by putting much more current strength through the current magnets, and by running it faster—three things.

Q. Mr. Edison stated this morning that you had made certain experiments for the purpose of ascertaining the amount of heat developed by a certain current. Did you make such an experiment? 2966

A. I did, at Mr. Edison's wish.

Q. Please describe it and the results?

A. We took a glass tube which is in the room, about five feet some inches in length and about two inches in diameter, which was there. We filled that with a weak solution of zinc sulphate which had 1,100 ohms resistance, so that it fairly represented at that time the resistance of the man as we obtained it in caustic potash solution.

2967 By the Referee:

Q. How many ohms?

A. 1,100; it fell subsequently to a thousand. You can call it really 1,000. We applied to that apparatus a continuous current of 1,300 volts pressure and during one minute we observed the rise of the temperature of the liquid. The whole column of the liquid was eight degrees centigrade.

2968 By Mr. Poste:

Q. Corresponding to how many degrees Fahrenheit?

A. Fourteen—fourteen and a half.

Q. Did not you say this morning that it was sixteen?

A. I believe Mr. Edison said nine degrees and I replied to his question nine degrees centigrade is sixteen degrees Fahrenheit. It is just a degree and a half more.

2969

Re-cross examination by Mr. Cockran:

Q You say that in some of those cases you used from one to eight volts?

A. Yes, sir.

Q. How did you measure the voltage that you used?

A. By employing a different number of cells and also by observing the current's strength that passed through the individual outside. 2970

Q, How did you observe that?

A. By means of a galvanometer.

Q. Did you measure it right along?

A. No, only in those particular measurements.

Q. What do you mean by those particular measurements?

A. The measurements taken with a view of ascertaining whether it did vary.

Q. Did you take down precisely what the voltage was at each moment?

A. At each test I wrote down what the voltage was. 2971.

Q. How did you measure the voltage you say?

A. In two ways; I varied the number of cells in the battery I was using, which was one method, and at the same time—

Q. (Interrupting.) How did that measure it? Just stop at that and tell me how did that measure it. Just give me an idea of it?

A. I took a battery for a—

Q. (Interrupting.) What was the name of that battery? 2972

A. Fuller battery.

Q. You had a Fuller battery?

A. Yes, sir.

Q. How many cells did you start with to give him one volt?

A. I had one cell.

Q. Now, is that a volt?

A. No; that is two volts. 2973

Q. That is two volts?

A. Yes, sir.

Q. Now go on?

A. The current passes through one side of the bridge, a 1,000 ohms, and then through the person observed, so that the electro-motive force upon the person would be just half, because the thousand ohms would take half of it; that would be one-half.

Q. That is one volt?

A. Yes. 2974

Q. Then, how did you get it—how did you know what it would want above that?

A. I would use more cells.

Q. What proportion would that give you?

A. In proportion to the size of the battery.

Q. How many cells did you use in the case of Lehmann?

A. In all those measurements I used eight volts.

2975 Q. But how many cells?

A. Four cells.

Q. Four cells?

A. Yes, sir.

Q. And you concluded that that would give eight volts?

A. And I concluded that to give eight volts.

Q. Is that an absolnte measurement or an assumption?

2976 A. That is absolutely reliable. I measured it besides.

Q. When you say you measured it besides—I mean is that alone of itself an absolute measurement?

A. That alone of itself is absolutely within two or three per cent.

Q. Within two or three per cent?

A. Yes, sir.

Q. How do you fix that?

A. Because the electro-motive force of those cells
2977 does not vary more than one per cent.

Q. Now, have you got that measurement out of a book of any kind?

A. I have taken it myself hundreds of times.

Q. Won't you answer my question? Have you taken this out of a book; have you consulted a book?

A. It was unnecessary for me to consult a book.

Q. That is not my question. Did you?

A. No, I did not.

2978 Q. Now, did you measure the current with a galvanometer?

A. I did.

Q. Do you know now and can you tell us what the constant galvanometer is?

A. It is marked off on the instrument itself.

Q. Did you measure it?

A. I measured it myself.

Q. Have you got it on your notes now?

A. No, I have not. I have not it here.

Q. Have you it anywhere? 2979

A. I have.

Q. Have you got all your notes with you?

A. No; there are many other things besides this.

Q. Can you give me any estimate or idea of what that constant was?

A. It is marked off exactly.

Q. Can you tell us what it was?

A. The constant was a unity.

Q. What? 2980

A. The constant was a unity.

Q. Then it was one?

A. Yes; unity is one.

Q. You have said that it was possible to stimulate the power; to increase the power of one of these dynamos. Do you know what the revolutions per minute of this Westinghouse dynamo is?

A. I do not know of my own knowledge.

Q. Assuming it to be 1,650 revolutions a minute, how much do you think you could increase that with 2981 safety to the bystanders?

A. I do not know that without seeing the machine.

Q. You have got one there?

A. No, not one of them: we have no Westinghouse machine.

Q. Did you ever see one of those machines?

A. Yes, sir.

Q. Where?

A. At different electric-light stations. 2982

Q. Where?

A. At different electric-light stations.

Q. Now fasten one in your mind.

A. Yes.

Q. Have you got one in your mind now?

A. I have.

Q. Where is it located?

A. At Staten Island.

Q. Take that Staten Island dynamo and how could

2983 you increase it—what number of revolutions could you increase it with safety?

A. I should estimate about another 300 revolutions per minute, perhaps.

Q. About 300?

A. Yes, sir.

Q. So that we would not want to increase it much over 2,000?

A. I should not like to do it.

2984 Q. 1,650 being the amount given at which it should run, you would not care to increase it above 2,000?

A. Not unless I measured the instrument carefully.

Q. You wouldn't like to be around if there were more than 2,000?

A. No; I should not.

Q. And if it was doubled and brought up to 3,200—3,300—you wouldn't want to go over in the next block?

A. I should be a little anxious.

2985 Q. Would you be anxious to get as far out of the reach as possible?

A. I should be anxious for the safety of the machine.

Q. The safety of the machine means that the wheel would be likely to go apart?

A. The armature would be likely to fly to pieces.

Q. In that case, if it struck anybody, it would give him as powerful a sensation as if he got a current?

A. Perhaps.

2986 Q. Were you at that experiment where the dog was killed with a brick?

A. I was not.

Q. You cannot tell us anything about that shock?

A. I know nothing about that.

Q. Will you let me ask you one question: Why were they gotten up; what was their object?

Mr. Poste:

Q. Which do you mean?

Mr. Cockran: 2987

A. I mean the first series of experiments that were gotten up by Mr. Harold P. Brown.

A. I will tell you.

Q. I wish you would.

A. So far as I know.

Q. I am speaking of what you went into it for. How did you come to go into it?

A. I will tell you. The first instructions I had from Mr. Edison in the matter were upon the occasion 2988 of the *World* reporter coming down to the Edison laboratory and asking Mr. Edison certain questions about the safety or danger of an alternating current and direct current.

Q. There was a competition between the Edison Light Company and the other light company as to the use of these currents, was there not? They were both competing companies?

A. I understand that.

Q. And each one claims that his current is the better of the two? 2989

A. Each one claims that it is more advantageous.

Q. And these experiments of yours were, in the first instance, carried on for the purpose of establishing the superiority of your own current in some instances?

A. No; by no means.

Q. Well, what then?

A. The first experiments that I made for Mr. Edison were those upon the information, as I have said, 2990 of the *World* reporter, simply to obtain information. I did not know at that time that there was any difference whatever between the two. I had no reason to suppose that there was any difference between the two.

Q. Well, as you developed your experiments, was not that your object?

A. By no means.

2991 Q. What was the object of them?

A. The object was to gain information as to what kind of a current would kill a human being.

Q. How did you come to be interested in that?

A. Because it was the *World* reporter, as far as I know. Mr. Edison can tell better than I can about that; it was the *World* reporter who first started the inquiries in that direction.

Q. How long did the *World* reporter's stimulus last? Were all those experiments made under the influence of the *World* reporter's information? Shortly after the *World* reporter's visit Mr. Brown visited the laboratory. Was that your first view of Mr. Brown? 2992

A. That was my first view of Mr. Brown.

Q. Who presented Mr. Brown to you?

A. I saw him when I was calling on Mr. Edison, and he was speaking to Mr. Edison at that time.

Q. Mr. Edison introduced you?

A. Yes, sir.

2993 Q. Have you seen Mr. Brown often since?

A. I have seen him since that time, I suppose, twenty times.

Q. When Mr. Brown and you were introduced what instructions did you get then?

A. I was told by Mr. Edison to assist Mr. Brown in making these experiments.

Q. Did you know what Mr. Brown's object was in making them?

2994 A. I did not—I did not ask him.

Q. You have seen this book (referring to Relator's Exhibit "A")?

A. I have seen that book, certainly.

Q. Do not you know now that the object of those experiments was to establish the comparative advantages of the alternating current?

A. No; I know from the book that he has shown that there is such an advantage, but I did not know that he had any such object at the time that these experiments were made.

Q. Did he explain to you what his object was? 2995

A. He did not.

Q. Did you ask him?

A. I did not.

Q. Was it not a somewhat unusual circumstance for you, as an electrician engaged in electrical inventions, to be called out to experiment on dogs?

A. It was not. Mr. Edison is very courteous to visitors and lets them, as a rule, experiment upon everything. 2996

Q. As a rule?

A. Yes, sir.

Q. Do you mean to say that Mr. Edison, as a rule, will furnish dogs at 25 cents a head and send out purveyors to get old horses—horses of some age—and bring them in for the purpose of experimenting as a courtesy to wayfaring experimentalists?

A. Mr. Edison did that in this case.

Q. That was an unusual thing, was it not?

A. I do not think it was unusual. 2997

Q. Did you ever know him to do it before or since?

A. Not with dogs, but other things, certainly.

Q. You have known him to go out and buy dogs or things?

A. I have known him to go to considerable expense.

Q. Well, send out and purchase things for the benefit of comparative strangers who wanted to experiment in his laboratory? 2998

A. I do not know him to go out and buy dogs personally; no, sir.

Q. Or send out and get them?

A. Indirectly, yes.

Q. What do you mean by indirectly?

A. That is to say, he did not purchase them himself; but he allowed the expense to be run into.

Q. And was that so in many other instances?

2999 A. Several instances to my knowledge.

Q. It was entirely a matter of common every day occurence, so that it did not strike you as being at all remarkable?

A. It did not strike me as being very remarkable.

Q. How long were you at those experiments?

A. They lasted over several months, but sometimes we did not do anything for a week or a fortnight at a time.

3000 Q. You had several months of your time, then, devoted to this, with interruptions of a week at a time?

A. No, I only gave perhaps an hour in the evening to those experiments.

Q. Well, for how long did that last?

A. You see the number of experiments there.

Q. They seem to have lasted indefinitely for several months?

A. They lasted at intervals for several months.

Q. And according to the report there they seem to

3001 have covered a good space of the day?

A. No, in the evening, except the demonstrations before the board.

Q. Now, your time was given up to some extent in preparing for those experiments?

A. Not at all: no.

Q. They required very little preparation?

A. They were always ready.

Q. They were always ready?

3002 A. Very little preparation needed. We used to make the preparations in the same evening.

Q. And you put in an hour in the evening at these experiments out of regard and respect to Mr. Brown?

A. No, I put them in because Mr. Edison told me to.

Q. You understand that the whole purpose of that was simply to aid Mr. Brown in his pursuit of knowledge?

A. I know that they were for the purpose of aiding Mr. Brown in obtaining certain facts.

Q. And the result of all that was the publication of his book? 3003

A. The result of all that has been the issue of the work?

By Mr. Poste:

Q. Do you know as a matter of fact who did pay for the animals?

A. Do I know what?

Q. Do you know as a matter of fact who actually paid for the animals? 3004

A. I paid for some of the dogs myself.

By Mr. Cockran:

Q. At the usual rate?

A. At 25 cents.

Q. In the course of your experiments have you ever determined the intensity of the earth's magnetism at Orange, where the laboratory is?

A. Yes, sir. 3005

Adjourned until Wednesday, July 24th, at 10 A. M.

NEW YORK, July 24, 1889.

Met pursuant to adjournment.

Present, counsel as before.

3006

CYRUS EDSON, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

Q. What is your profession?

A. Physician.

Q. How long have you been in practice?

3007 A. About nine years.

Q. In the city of New York?

A. Yes, sir.

Q. Do you hold any professional official position in the city of New York?

A. Yes, I am physician-in-chief of the Health Department and president of the New York Board of Pharmacy.

Q. Do you make use of electricity as a medical agent in your practice? 3008

A. I do, sir.

Q. Did you witness certain experiments during the past year—last year—did you witness certain experiments last year designed to test the effects of a current of electricity upon animal life?

A. I did, yes.

Q. Where?

A. At the School of Mines, Columbia College, August 3d of last year.

3009 Q. In what capacity did you attend those experiments?

A. I conducted them.

Q. You conducted them?

A. Yes, sir.

Q. Can you state what took place, or rather, who were present at those experiments?

A. Captain Zalinski, of the United States Army; Mr. Murray Mitchell, a lawyer; Dr. Peterson, Dr. Wheeler, Mr. Harold P. Brown, and Dr. Charles F. Roberts, who assisted me. 3010

By the Referee:

Q. Is that the Zalinski, the inventor of the dynamite gun?

A. Yes, sir.

By Mr. Poste:

Q. Was this the occasion at which the members of the Board of Electrical Control were present?

A. No, sir; they were not there. 3011

Q. Doctor, won't you please describe the experiments that were made on that occasion?

A. There were three dogs operated on; they varied in weight from 53 to 91 pounds. The current applied was from, I think, 223 or 224 volts to about 250. The resistance was 8,000 ohms to 30,000 ohms, and the electrical contacts were made from the opposite fore and hind feet, by means of cotton wastes saturated with water and copper wire fastened around it. 3012

Q. What kind of a dynamo was used with reference to this?

A. An alternating current was used—a Westinghouse dynamo, I believe.

Q. Did the animals die under the application of the current?

A. All died under the first application given, sir, except one, which required the second application; but in that case we made the voltage low at first, to ascertain how low a power was necessary to work? 3013

Q. Did you examine the animals after the application of the current, to ascertain whether they were dead?

A. One of them was carefully examined.

Q. You ascertained that they were all dead?

A. Oh, yes, sir.

Q. And you testified that they were all dead?

A. Yes.

Q. After you had determined that they were dead did you make any dissection of them, or any of them? 3014

A. One of them was very carefully examined—the heart, and lungs, and the intestines, blood vessels, nerves, sections of the pneumogastric nerves, sections of the phrenic, and sections of the diaphragm were examined under the miscroscope. They showed no change whatever.

Q. They showed no change whatever?

A. No, sir.

3015 Q. What was discovered in regard to the heart—anything?

A. The heart had stopped in systole; that is in contraction.

Q. Are you a vivisectionist, doctor?

A. I have done a good deal of that; I understand it to some extent.

Q. Now, doctor, give me your opinion upon this question. Can an electrical current be applied to the human body by artificial means, and in such a manner 3016 as to produce death in every case?

A. I think it can, sir; without a doubt.

Q. Instantly?

A. I think so, sir.

Q. And without pain?

A. That is my opinion.

Q. Now, have you formed any opinion as to the amount of electrical energy that would be necessary, in case proper application of the electrodes is made, to 3017 produce death in every case of application to a human being?

A. Yes, sir.

Q. What—

A. (Interrupting.) I think it would probably take less than half an ampere; something between one quarter and a half.

Q. How much voltage do you think in connection with that current would kill in every case?

3018 A. I think it is probable that 600 to 1,000 volts will do the business.

Q. Doctor, what proportion of the human body is made up of water?

A. About three-quarters, roughly.

By the Referee:

Q. There were some estimates higher than that, were there not?

A. Yes, that is a very rough estimate.

Q. I say there are some higher? 3019
A. Yes.

By Mr. Poste:

Q. A witness testified that a person, in his opinion, might be suspended from an electric-light wire by his feet, from a contraction of the muscles produced by the electrical current. Do you think it possible, having regard to the construction of the human foot, that such a contraction or contortion of the muscles of 3020 the sole of the human foot can be produced by a current of electricity, or any other cause, so as to make the man's foot prehensible to such an extent as to suspend the body from the wire?

A. The bare human foot?

Q. Yes, sir.

A. I do not think that it is possible; I do not see how such a thing could occur.

3021

Cross-examination by Mr. Cockran:

Q. Doctor, you wouldn't be surprised at anything you heard in the way of development of electrical power, would you?

A. No, sir; I should not.

Q. What?

A. I should not; no.

Q. You do not claim that in any of those answers 3022 you have given you are discussing an exact science, do you; or that you are speaking from demonstrated facts?

A. No, sir; it is not an exact science—I don't believe it to be an exact science as we understand it.

Q. We may learn enough to make it exact?

A. Yes, sir.

Q. Exactly. You wouldn't be surprised to find that an electrical current could be generated, some

3023 time or other, to duplicate the effect of an earthquake; would you?

A. No, sir; I do not think I would.

Q. And so, when you speak of the effects of an electrical current, which have not been ascertained, you are speaking purely of what is in the domain of experiments?

A. Yes, sir.

Q. And that is true as to the effect of electricity upon human life—that is purely experimental as yet? 3024

A. I don't think so entirely, sir. It is partially.

Q. It either is or it is not?

A. We have arrived at a certain point—we have got to a certain point, up to which I believe we know.

Q. How far have you got; let us hear?

A. I believe that we know that electricity will kill if properly applied; I believe that much has been demonstrated.

Q. How has it been demonstrated?

3025 A. It has been demonstrated by experiments on animals.

Q. I am speaking of a human being?

A. I think we can reason from analogy.

Q. That is it, of course. That is just what I wanted to get at, whether you are speaking of conclusions or whether you are speaking of an actually demonstrated fact?

A. It has never been actually demonstrated except as we have demonstrated it on animals. 3026

Q. Do you think that it has ever been demonstrated on animals?

A. I think so, sir.

Q. Now, how much demonstration has there been?

A. We have succeeded in killing animals under certain conditions, invariably.

Q. There was one instance here where a dog escaped, was there not?

A. Not in the three experiments that I witnessed.

Q. You made three experiments?

A. Yes. 3027.

Q. And upon that you assume that it is a universal rule to which you can testify under oath?

A. I believe so, sir.

Q. And some of your knowledge is conditioned upon those three experiments?

A. It is, what I actually know, what I have read and understood from others.

Q. Now, doctor, could you tell us in advance what voltage would kill any one animal, by ascertaining 3028 the voltage and ampere force that would kill another?

A. I think so, sir.

Q. Did your experiments show that?

A. My experiments showed invariably that 230 volts killed.

Q. That is not my question. Could you from what you observed to be fatal in one instance predicate with absolute certainty what would be fatal in another—that is my question?

A. No, sir: you could not. 3029

Q. Are you quite sure that all these dogs were dead?

A. Yes.

Q. How did you judge that?

A. By the heart—the cessation of respiration and the change in the structure of the eye.

Q. Would you be surprised to hear, doctor—for instance, suppose that a man were pronounced dead by physicians from an electric shock, and that he 3030 afterward revived?

A. No, sir.

Q. That would be outside of the line of experiments?

A. No, sir.

Q. Supposing that was ascertained and demonstrated to your satisfaction, would you rearrange your hypothesis in regard to that?

A. I should have wanted to examine him myself.

3031 I wouldn't want anybody else's but my own opinion on that.

Q. You would hardly reject the evidence of an eminent surgeon or physician, would you, perhaps even more eminent than yourself?

A. If I had confidence in him.

Q. When it comes down to that it means that you would refuse to be convinced because the man having recovered and running around you could not see him in that condition? 3032

A. No, sir.

Q. So that your answer would simply amount to an assertion that you would refuse to be convinced; is that not so?

A. Yes, sir.

Q. Now, in all scientific discussions and explorations must not men depend largely upon the experiments of others?

A. Yes, sir; very true.

3033 Q. And what they have acquired?

A. Yes, sir.

Q. And in the event of certain phenomena coming to your knowledge which would be incomprehensible to you from your present impression, you would rearrange your conclusions, wouldn't you.

A. Yes.

Q. And that is exactly the condition in which this science is now, is it not?

3034 A. Yes, it is an uncertain science now; yes, sir.

Q. Now, doctor, in one of these experiments, where a dog was dissected—I would like to know whether you were present, as there was a condition there that I would like to ask you about. Let me ask you first, did you assist generally at any of these dissections?

A. At only one, sir; the one in which I assisted—which I conducted, rather—it is on page 13, and that is the only one.

Q. Where?

A. Page 13.

The Referee: 3035

Page 13 of Exhibit what?

Mr. Poste:

Relator's Exhibit "A." I think that is the first exhibit.

Q. There was one experiment given here in which the animal was described as having blood in the brain, but without any appearance of hemorrhage? 3036

A. No, sir; I do not.

Q. In the case of dissection?

A. No, sir.

Q. Well, all the other organs of the body seemed to be normal?

A. No, sir; I have not read that.

Q. Can you imagine such a thing as that?

A. It may mean that the brain was congested—that is frequently the case in death from some causes. 3037

Q. Death from what causes?

A. Death from inflammation of the brain.

Q. From what?

A. Inflammation of the brain. We find the blood vessels all containing more blood than they should. They are dilated, and the brain is quite red with blood.

Q. Where does that blood come from if there is not a hemorrhage somewhere?

A. It is simply dilation of the blood vessels, as in the case of hemorrhage; it is the vessels having given 3038 away.

Q. It is simply a swelling of the blood vessels?

A. It is simply a swelling of the blood vessels.

Q. Would you call that the presence of blood in the brain—that would be the term that you would use?

A. Oh, yes.

Q. That would produce death in what way—what is the physical effect of that?

3039 A. That might not have produced death at all; it may simply be an effect there.

Q. Suppose you simply saw that symptom and the other organs of the body were normal upon dissection, would you have any doubt that the man was dead when you put the knife into him?

A. It would not necessarily show the death in that case at all.

Q. Can you tell us what the cause of death is from the contact—from the contact from an electrical shock? 3040

A. I think it is due to paralysis of the blood.

Q. You believe that? I mean are you prepared to testify as a matter of fact?

A. Oh, no.

Q. Then you don't know; you cannot swear?

A. No, sir; I cannot swear exactly.

Q. You know how a bullet will cause death if you get the place where it strikes?

A. Not invariably.

3041 Q. As a general thing?

A. As a general thing you can tell it; yes, sir.

Q. You know that it is within the reach of science, if a man gets struck by a bullet and you dissect him—you can tell exactly what the effect of that was?

A. Yes, sir.

Q. The same is true if a man gets a knife wound?

A. Yes, sir.

Q. It is equally true if a man is hung?

3042 A. Yes, sir.

Q. In this particular case of death by electricity you don't think that you could testify how it produces death?

A. No, sir.

Q. If it produces it at all?

A. No, sir.

Q. Also, if you dissect—if you cut open a human being or any animal and find the auricle of the heart beating, would you consider it doubtful as to whether he was dead or not?

A. I should. 3043

Q. Either auricle?

A. Yes, sir. At the same time, the heart retains after death, sometimes, its power of muscular contraction; by irritating it you can cause a beat after the animal is dead. It would depend upon the rhythm of the contractions whether I thought it was dead or not.

Q. If you found it regularly beating?

A. Yes, I should doubt whether the animal had been dead. 3044

Q. You should doubt whether the animal had been dead before the knife went in?

A. Yes.

Q. But generally the knife leaves very little doubt about it—after he is dissected—I suppose?

A. Yes, sir; that is it.

Q. Doctor, would you consider it impossible for a man to be struck by a thunderbolt and his clothes torn from him, a path four inches wide burned down his breast and round his leg and passing through from 3045 the right to the left side on the leg and then passing from the right foot to the left foot, tearing the clothes and shoes—everything away—paralyzing the man for 20 days afterward—would you consider that such a man as that would ultimately recover?

A. Would I consider that he could ultimately recover?

Q. Yes.

A. I do not think it impossible, sir. 3046

Q. You should think it impossible?

A. Not impossible.

Q. But very unlikely?

A. I should not think so, sir.

Q. You would?

A. I should think it was within the bounds of possibility. I should think it would be perhaps unlikely that he would recover after such an experience.

Q. What do you mean by that, doctor?

3047 A. I mean to say that I think a lightning stroke, no matter how apparently received, may not result fatally, no matter what the conditions were.

Q. What do you attribute that to?

A. The failure of the current to pass through the body properly.

Q. How would you account for the lightning striking his skin and burning some inches deep and not penetrating—what prevents its penetration? What law does it obey? 3048

A. The resistance of the man's system.

Q. It is the resistance of the human system?

A. Yes, sir.

Q. And it is just that resistance that would save him, so to speak?

A. Yes, sir.

Q. How, a thunderbolt, assuming that; does not that make the human body practically a conductor to the current?

3049 A. No, sir, I do not think so.

Q. The bolt left traces of its passage all down his body and ultimately came out at the toe, having struck him on the chest.

A. It is evidently guided by the direction of the body.

Q. That made it—so to speak—made it act as a lightning rod, didn't it?

A. To a certain extent.

3050 Q. In point of fact, that is the theory of the lightning rod; it attracts the bolts and drags them to the ground?

A. Yes.

Q. And in that case his body acted precisely as a lightning rod?

A. Yes.

Q. Now, doctor, do you think it is possible for a man to put both hands on the poles of a dynamo—a Westinghouse machine running at a thousand volts—

right at the machine itself and survive, running at a 3051
thousand volts pressure?

A. Do you mean so there would be nothing between his hands to divert the current—so that the current must pass through his body?

Q. I do not know whether it must or not—I have some doubts as to whether it would or not. I am giving you the condition of a man's hands; it is a moist, warm day, and he catches hold of the two poles; that
is, catches hold of one deliberately and the other acci- 3052
dentally—the two opposite poles. What do you think would happen?

A. I should think it would kill him.

Q. And it is upon that assumption that you testify here as to the power of electricity, the way it would work.

A. Yes, sir.

Q. Suppose you saw a man that it did not kill, would that tend to disturb your faith in your conclu-
sions? 3053

A. It certainly would if I knew the conditions exactly.

Q. Well, the man could only tell you the conditions as I have described them. He was arranging one of these brushes—switches—he had his hand upon one switch and brought his hand around in contact with the other.

The Referee: 3054

He testified he touched it with the back of his knuckle and it burned him at the points of contact.

A. Are there any burns on his hands?

Q. Yes.

A. Very badly burned.

Q. No, not very; I think those burns were not very bad?

A. I should think that there was evidence that the contact was not perfect.

3055 Q. What would prevent the contact from being perfect?

A. The resistance.

Q. The element always exists wherever a person catches hold of the wire?

A. Unless we destroy it some way or other.

Q. Is there any way of destroying it, or is it a simple speculative idea that something would destroy it?

3056 A. We can measure that resistance and make up for it.

Q. Well, doctor, how would you measure it to make up for it?

A. By means of a measure—by means of a bridge—by means of the Wheatstone bridge.

Q. That is the measurement; are you quite sure that would be a reliable measurement?

A. No, I am not an electrical expert, in that sense of the word.

3057 Q. That is the point; now, then, suppose that your Wheatstone bridge recorded different resistances every time you tested the man within a space of two or three minutes, how would you make the resistance—you would be at sea some?

A. I think so, sir.

Re-direct examination by Mr. Poste:

3058 Q. When you speak of electricity being an uncertain science, do you mean to say in your opinion that some of its laws have not been defined so as to be entirely reliable?

A. Yes.

Q. The question is, to put it in another way: Have not many of its laws, in your opinion, been accurately defined, so that they are entirely reliable?

A. Yes.

Q. Well, other laws may be not so well defined, possibly?

A. Yes, sir. 3059

Re-cross examination by Mr. Cockran:

Q. Doctor, let me ask you a question; in answer to Mr. Poste you said—he asked you what amount of electrical energy—you speak of ½ an ampere and from 600 to 1,000 volts—now, could you tell how much heat that electrical energy would give?

A. No, sir; I could not. 3060

Q. How could you ascertain the electrical energy?

A. By measurements.

Q. What measurements?

A. Measurements—

Q. Pardon me, that question is withdrawn; I will ask you this question: Is it not as easy to ascertain the degree of heat that is generated as the amount of electrical energy?

A. Yes, sir.

Q. There is a regular form? 3061

A. Yes, sir.

Q. How did you come to make this computation of electrical energy for Mr. Poste?

A. By means of an apparatus for measuring it.

Q. What apparatus?

A. I forget what apparatus was used at the time.

Q. Who gave it to you?

A. Mr. Brown.

Q. Mr. Brown's production? 3062

A. Yes, sir.

Q. Doctor, during all those experiments the animals seemed to be very comfortable?

A. Before the application of electricity.

Q. During the application?

A. They appeared unconscious.

Q. Were you present at any where they showed great agony?

A. No, sir; I was not.

3063 Q. You saw three dogs operated upon?

A. Yes, sir.

RUDOLPH A. WITTHAUS, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

3064 Q. Doctor, what is your profession?

A. I am a chemist and a graduate in medicine?

Q. Have you any official positions?

A. Yes, sir; I am a chemist in physics in the University of Vermont—in the University of the City of New York, I mean, and I hold a like position in the University of Vermont.

Q. In your chemical investigations have you made some study and use of electrical currents?

A. Yes, sir.

3065 Q. Dr. Sachs, a witness for the Relator in this matter, has testified that under the application of a current of electricity to the human body, that burning would be produced. He says: "I do not think it is a matter of heat in the electrodes; it might possibly be to a certain extent; under the influence of the negative pole particularly, alkalies are formed, and these alkalies produce a chemical, caustic action; I think it is a chemical action.

3066

Mr. Cockran:

Like vitriol?

Q. (Continuing.) It is not a burning like a hot substance touching it?

A. It is not a burn like touching anything hot; like platinum wire. I am not willing to say positively that it acts like vitriol. I will say that it has a chemical effect—the action of it.

Q. Please tell me whether, in your opinion, in the 3067
application of an alternating current of electricity, when applied to the human body, such an effect would be produced as Dr. Sachs seems to think would be produced, or not?

A. I think not.

Q. Please give me your reason for your opinion?

A. There are several reasons: In the first place, the action of an alkali on the human body depends very largely upon its degree of concentration; if it is 3068
taken in a diluted form the action is slight; and the alkalies are constantly used as medicine. Now, granting that this decomposition takes place, the salts, notably the chloride of sodium, are decomposed by the action of the battery. There is liberated at the positive pole chlorides, and at the negative pole sodium. Now, this sodium, as soon as it is liberated, combines with the water, granting that this decomposition takes place, with a formation of caustic soda. That caustic
soda there comes in contact with carbonic acid, either 3069
in the shape of free carbonic acid or in the shape of the bi-carbonate of soda, and there is a reaction between the two with the formation of the bi-carbonate of soda, which is a salt having a slight alkaline reaction, but not of sufficient alkaline reaction to produce any serious trouble unless it is in a high degree of concentration. Under the influence of this current the circulation of the pole is more rapid than usual. Under
normal circumstances the circulation from one part 3070
back to the other part occurs in about twenty seconds, and consequently, if this material were formed at all it would be washed out by this current, and would not accumulate there so as to become sufficiently concentrated. Secondly, under the influence of the current the muscle contracts. When a muscle contracts, there is an alleged formation of lactic acid, and this lactic acid would neutralize any alkali which might be present. Then, of course, there is this chloride of sodium;

3071 I am simply taking that as an instance; the same is
true of all these. When that is decomposed there is
formed a certain portion of the alkali at one pole and
a corresponding amount of chloride or acid at the other
pole, exactly sufficient to neutralize it, and in this rapid
circulation those two parts would come together, and,
combining again, reproduce the original substance,
so that in order to produce any accumulation of alkali
at the negative pole it would be necessary to arrest
3072 the circulation by applying a ligature. Finally, if this
be an alternating current, one terminal is at one instant
of time the positive pole and at the next instant
of time the negative pole. While it is the positive
pole the acid is being generated; while it is the negative
pole the acid is generated in an equally sufficient
amount, if the alternations are equal, to neutralize
each other; so that in an alternating current these
materials would neutralize each other as rapidly as
they are formed and you would have no accumulation
3073 of alkali there. Then again, the action of chloride is
more intense on some animals, and hence, if this hypothesis
be true, you would expect a more active disorganization
of the tissue at the positive pole than what
you would get at the negative pole.

Cross-examination by Mr. Cockran:

Q. Doctor, that is your judgment of it?

A. Yes, sir.

3074 Q. You have heard Dr. Sachs's opinion?

A. I have not; I have read a portion of it.

Q. You read it?

A. Yes, sir.

Q. And he has got his opinion and you have got yours?

A. Yes, sir.

Mr. Cockran:

I congratulate you both; that is all, doctor.

Cyrus Edson, recalled, examined by Mr. Cockran: 3075

Q. In these experiments that were made, was any note taken of the age or degree of the animals in point of vitality.

A. They were weighed and measured, but their age was not taken.

Q. When you speak of their measurements you mean the length—the distance from the base of the tail to the crown of the head?

A. Yes, sir; the nose. 3076

Q. And don't you know that the age of an animal would be an important element in deciding the value of these contests?

A. They seemed to be—

Q. Answer the question. The age of the animal would be an important element in deciding the test; is that so?

A. Yes, sir.

Q. And no steps were taken to ascertain that? 3077

A. It is impossible.

Q. Why impossible?

A. It is impossible to ascertain the dogs' ages, except very roughly, and their pedigrees were unknown when they came from the dog pound.

By Mr. Poste:

Q. Have you stated, doctor, the weight of the dogs?

A. Yes, sir. 3078

Mr. Cockran:

They are all stated in that book.

Q. You have stated it in your testimony?

A. I did, sir.

Q. Please state again what the weight of those dogs were.

A. They varied from 53 to 91 pounds.

3079 By Mr. Cockran:

Q. Did you find that the weight had anything to do with the capacity of a dog to stand the current?

A. No, sir.

Q. Nothing whatever to do with it?

A. It did not appear to have anything to do with it.

Q. Well, were there any indications given by the dog that would serve to guide you; each one was a new subject that you had to put the current on and then
3080 increase it until he was ready to die?

A. We put it on at a given point, and we killed two of them at the point at which it was put on. One we tried to kill with the lowest amount possible. We failed to kill it at 223 volts.

Q. What voltage did you reach?

A. We supplied the 223 up to 30 seconds, and that killed him.

Q. You kept it on long enough?

3081 A. We kept it on long enough.

By Mr. Poste:

Q. Was there any difference in the hair of the dogs that you remember?

A. Yes, sir.

Q. What difference did you observe?

A. The heaviest dog was a Newfoundland—very shaggy.

3082 By Mr. Cockran:

Q. Did I understand you to say, doctor, that you dissected one of these dogs yourself?

A. Yes, sir.

Q. What condition did you find him in when you dissected him?

A. I found everything practically normal, except that the heart had stopped in its contraction.

Q. Did you find anything to account for death?

A. No, sir; I found nothing.

SCHUYLER S. WHEELER, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows: 3083

Direct examination by Mr. Poste:

Q. Mr. Wheeler, what is your business?

A. Electrical engineer.

Q. Are you in the employ of any public body?

A. Yes, sir; I am in the employ of the State of New York. 3084

Q. In what capacity?

A. As electrical expert of the Board of Electrical Control.

Q. How many years have you devoted to the business of electrical engineer?

A. As a business?

Q. Yes.

A. Eight.

Q. How long have you been the electrical expert of the Board of Electrical Control? 3085

A. A little over a year; since the office was created.

Q. Are you familiar with the construction of certain classes of electrical implements or instruments?

A. Yes, sir.

Q. What?

A. Dynamos, electrical circuits, electric lamps, electric-lighting system, electrical measuring instruments and electric meters.

Q. Have you had practical experience in the manufacture of such instruments? 3086

A. Yes, sir.

Q. Mr. Wheeler, can there be an electrical current without a complete circuit? Do you understand my question?

A. I understand your question.

Mr. Cockran:

If he understands your question he can answer.

3087 Q. Well, answer it.

A. What do you mean by an electrical current?

Q. Can there be any movement of the electrical current unless there is an electrical circuit? That is to say, the conductors—wire conductors must form a complete circuit—in order to form a complete circuit—conductors of any kind?

A. There can be an infinitesimal movement without a complete circuit.

3088 Q. When two paths are presented to an electrical current, one of the greater conductivity than another, what law is varied by the current in that case?

A. The current divides between the several paths inversely in proportion to the resistance of each path.

Q. Is that law absolutely reliable?

A. Absolutely.

Q. Have you made any observation upon the resistance of the human body—any study of the subject?

A. One or two.

3089

By Mr. Cockran:

Q. One or two what—one or two experiments?

A. One or two experiments.

By Mr. Poste:

Q. You have had occasion to consider the subject, I suppose?

A. Yes, sir.

3090 Q. You regard the Wheatstone bridge as a reliable means of measuring resistance?

A. Absolutely reliable.

Q. Can you give me any figures on the relative conductivity of ordinary electric-light wire and the human body?

A. An ordinary electric-light wire, such as you use for arc lighting, measures about four or five ohms to the mile. The human body with a fairly good connection measures about 1,000 ohms.

Q. How is the conductivity of copper wire affected with reference to the area of its cross section? 3091

A. The conductivity increases directly as to the cross section.

By the Referee:

Q. What does that mean? If it is thicker it is a better conductor?

A. Yes. No; it means that it is a better conductor. It is better as the square of the electricity, because the wire being round the cross section increases the square of the diameter. Therefore, it is the increase of the cross section. 3092

Q. I call your attention, Mr. Wheeler, to the burning effects that will sometimes be produced by contact with electric connections, also the subject of the arc, and I desire your views on the cause of the burning effect and the protection of the arc.

A. The burning effect is due to bad contact, which increases the resistance at the point where the burning is produced, and consequently develops all or nearly all of the heat of the circuit at that point. As the heat is developed in the circuit at the point where the resistance are in proportion to the resistance? 3093

Q. When the resistance which is offered to the current at the point of contact, as I understand your answer, is increased by the fact that the contact is bad—is increased by that contact?

A. Yes, sir; that is what that contact means.

Q. And the worse the contact the greater the resistance? 3094

A. Yes, sir.

By the Referee:

Q. The more the burns?

A. Other conditions being the same.

Q. Other conditions being the same?

A. Yes.

3095 By Mr. Poste:

Q. Now, what is the arc as usually spoken of—not the arc-light, but the arc.

A. The arc is some vaporized material with a current passing through it.

Q. Does an arc produce burning effects upon the human body, we will say?

A. Yes.

3096 By the Referee:

Q. A spark of fire, isn't it?

A. Practically, a continual spark of fire.

Q. It produces a burn, because it is fire?

A. Yes.

By Mr. Poste:

Q. In the case of perfect contact, we will say, with the human body and an electric-light conductor, or 3097 an electrical conductor, is an arc possible in case of perfect contact?

A. No, sir.

Q. Would any burn be produced or arise in the case of a perfect contact between the human body and an electrical conductor?

A. It depends upon the amount of the current. If you use enough current to burn up the whole body, there would be. Does that answer?

3098 Q. Yes: I will take that as an answer. Now, such a current as that would, of course, heat the wire, would it not?

A. Under ordinary circumstances—an ordinary wire—it would.

Q. If you send a powerful current through an electrical-lighting wire, or copper wire, how is the heat which is produced disseminated through that wire?

A. You mean according to what law is it?

Q. How is it? Is it uniform, or is it in sparks?

A. It is uniform if the conductivity of the wire is uniform; if the conductivity varies, as, for example, if a piece of larger wire is introduced into the metal the heat will be developed in the same proportion as the resistance is distributed. Where the wire has higher resistance more heat will be developed. 3099

Q. You have given us the figures on the resistance of a mile of electric-lighting wire. What is the resistance of an ordinary arc lamp burning? 3100

A. It depends on the construction of the arc lamp. There are two general—two classes of them, and their resistances are—well, their resistances are almost five ohms.

Q. Yes. How many arc-lights are usually placed upon a circuit from one dynamo?

A. Usually between 20 and 60.

Q. Can you give me the figures as to the number of lights in case of the circuit being all incandescent lamps? 3101

A. There is no limit.

Q. Can you give me the figures on the resistance of one incandescent light?

A. They vary according to the economy and the methods adopted by the several companies. They are —some of the most common are in the neighborhood of 100 ohms when they are lighted, and 200 ohms when they are cool. That figure is between the several manufacturers. 3102

Q. Mr. Wheeler, when a person comes in contact with or seizes an electric-light wire, he standing on the ground, and he receives burns therefrom at the point of contact, what conclusion would you draw as to the likelihood of his having received the entire current carried by the electric-light wire?

A. I should conclude he had not received the entire current.

Q. Upon what grounds would you base that conclusion?

3103 A. On the ground that the resistance would be too high to induce the current to leave the wire, or not to permit the current to leave the wire.

Q. What effect would the burning—the effect of burning—have, in your judgment?

A. It would show that the contact had been poor.

Q. Then you take an ordinary arc-light circuit—the circuit with all the lights burning—and its conductivity is how much greater on the average than the average conductivity, or the conductivity of an aver- 3104 age person?

A. The conductivity is four times greater than the conductivity of the average person, if they were provided with first-rate contact—first-rate connection—and if they were not it would be correspondingly still greater.

Q. A person, we will say, is hung from an electric-lighting wire by his feet, he not touching the ground or any connection with the ground, what portion of 3105 the current would he receive in that case? Have you any approximate answer?

A. He would receive none of it—none of the current.

Q. Then the current would not pass up one leg and down the other and into the wire again?

A. Not unless the wire was cut in two between his feet.

Q. That was not my supposition.

3106 A. I assumed that it was not, because it was not so stated in the case.

Q. I say hung from an electric-light wire.

A. I took the question as you presented it.

Mr. Cockran:

That is a very good thing to do, Mr. Wheeler.

Q. Do you know of any power, or application of power, of electricity that would hold a man by the

soles of his feet to an electric-lighting wire? Is such 3107
a thing possible, in your judgment?

A. That the electricity could do it?

Q. Yes.

A. No; it is not possible.

Q. What is the relative conductivity of an electric-light wire and a rusty telegraph wire?

A. It depends on the size of the electric-light wire and the amount of rust on the telegraph wire.

Q. Well? 3108

A. About—probably—the telegraph wire would probably have eight or ten times the resistance.

Q. The telegraph wire would probably have eight or ten times the resistance, and the conductivity would vary as to the resistance?

A. The conductivity is the opposite. The electric-light wire would have 10 times the conductivity of the telegraph wire.

Q. I present the following statement to you, and
ask your opinion on it, Mr. Wheeler: A rusty telegraph 3109
wire on a dry day hangs across an electric-light wire with underwriter's insolation thereon. There is on the electric-light wire an alternating current under pressure of 1,000 volts. One end of the telegraph wire is around a winding reel, and the other end of the wire hangs down from the electric-light wire and lies upon the ground. A large shaggy dog runs against the hanging wire on that side where it lies upon the
ground; he receives a shock, falls on the wire, falls to 3110
the ground, lying on the wire. He lies there for 10 minutes, receiving burns, is apparently dead, but revives after some hours. Now, please state your deductions from that case and upon this question. Could the dog under those circumstances have received all of the electric current passing over the electric wire? What is your opinion on that proposition?

A. If there were no lamps connected to the wire, and consequently the wire was very small and it had

3111 no other outlet, the only current on the wire would have to go from the wire and through the dog. But taking a fair assumption of circumstances, I would say that the dog had not received the total current on the wire.

Q. The electric-light wire is how many times a better conductor than the telegraph wire, you say?

A. Ten times.

Q. The telegraph wire simply hangs over the electric wire? 3112

A. Yes.

Q. Now, applying your rule that the current divides—suppose it does divide—in that case, one portion would pass over the electric circuit and one portion over the telegraph wire?

A. This is an alternating-current system?

Q. Yes.

A. The wires for the alternating-current system are not arranged in a circuit, and consequently, unless 3113 there are lamps turned on, which would connect one of the lidges to the other lidge, there can be no current through the wire, and, therefore, if there are no lamps connected, of course there can be no current on the wire until the dog and the rusty wire form some limit to travel around it. But if there are lamps connected then the current will travel through this circuit and probably very little of it would go through the dog.

3114 By the Referee:

Q. Would it make any difference in case this electric-light wire had rusted through the—I said electric light; I mean telegraph wire—through the insulated covering of the electric-light wire, so that there was a contact between the metal surfaces?

A. Oh, yes; that would make a considerable difference. I am assuming that it had no cut through the insulation.

Q. Assuming that that was so, what difference would it make? 3115

A. It would make a difference in amount of contact; that is all. In the other case, it not having cut through the insulation, hardly any current would go down through the rusty wire.

Q. Suppose it had cut through?

A. Then the amount I speak of would go down.

By Mr. Cockran: 3116

Q. What amount that you speak of?

A. A small portion of the whole current on the wire.

By the Referee:

Q. Even then only a small portion would go through the dog?

A. Yes.

By Mr. Poste: 3117

Q. Even when that was done a small portion only would go down through the dog?

A. Yes, sir.

Q. Have you attended any experiments to test the effect of the electricity on animal life, Mr. Wheeler?

A. Yes, sir.

Q. Where did you attend those experiments?

A. At Columbia College.

Q. Who was present? 3118

A. Mr. Brown was present, Dr. Cyrus Edson, Dr. Roberts of Bellevue, Dr. Frank Ingram, Dr. Peterson, Mr. Kennelly and a number of others.

Q. Did you say that the Board of Electrical Control were present on that occasion?

A. There were two of the members present one day and none of them the second day.

Q. Then you were present yourself on two days?

A. Yes, sir.

3119 Q. Now, won't you describe what you witnessed during those experiments?

A. I saw a continuous current applied to a dog and at a low—at a pressure which it was known would kill the dog. The pressure was then raised and successively raised a number of times, up to, I believe, twelve hundred volts or eleven hundred, causing the dog terrible agony. The current did not kill the dog and the audience was so disturbed that they asked that the dog be killed immediately. Mr. Brown asked that we 3120 put a current on which would kill, and the audience said yes, and he put on an alternating current of about 300 volts, I believe.

Mr. Cockran:

Don't tell us what you believe; tell us what you know.

Mr. Poste:

3121 Give us your best recollections.

Mr. Cockran:

Unless you knew it at some time, and it is your best recollection, don't testify to it.

The Witness:

I read the voltmeter. It is my best recollection 3122 that it was about 300 volts.

Q. Yes?

A. And the dog died. The second day—

Q. (Interrupting.) Was there more than one dog the first day that you recollect?

A. No, sir; I think not. I think there was only one dog. The second day several dogs were tried with alternating currents in the first instance. That is without previously using any other current. The dogs

were killed in various lengths of time, varying with 3123
the amount of current that was used and the size of
the dog. I asked the doctors present about the suffering of the dogs—

Mr. Cockran:

Don't tell us that; the doctors will testify to that.

By the Referee:

Q. Did they show any signs of suffering? 3124

A. I am not a doctor; I do not know what a sign of suffering is.

Q. Did they struggle any, and how?

A. They struggled.

By Mr. Poste:

Q. Was that the first day or the second day?

A. That was principally the first day.

Q. Is it your recollection that the dog struggled 3125
any when the current was actually applied?

A. The dogs moved, but I should say that the movement was the effect of the current.

Q. Suppose a man takes hold of an electrical conductor, and puts himself in the circuit actually of an electrical circuit: what effect does it have upon the muscles of his hands?

A. It makes them move violently and assume a rigid position. 3126

Q. When he takes—suppose he grasped two ends of an electric wire on which there is a fairly strong current, what effect has it upon the muscles of his hand?

A. It causes them to contract; it makes him grasp the wire more firmly.

Q. Then, if a man should get hold of both ends of an electric wire having a strong current passing over it, would he be able to let go?

3127 A. No.

Q. Say one hundred volts?

A. At a continuous current or alternating?

Q. No; alternating?

A. I have not seen it tried.

Q. From your observation of the effects of the current in such case, what would be your opinion on that subject?

A. I could not tell, not at one hundred volts.

3128 Q. Two hundred volts. Do you think that he would be able to let go of the wire? I am talking about a current which I am assuming would not kill him—I assume that a powerful current would not kill him?

A. I could not tell at two hundred that it would kill him.

Q. In describing these experiments the first day,
that you witnessed, I understood you to say that they
were avowedly, as you understood it, merely experi-
3129 mental in the first instance; there was no intention to
kill the dog, but it was experimental, raising the voltage gradually?

A. Yes, sir.

Q. Till finally the alternating current was applied, giving him his quietus. Is that correct?

A. Yes, sir.

Q. Have you, in the course of your electrical ex-
perience or studies, Mr. Wheeler, devoted any atten-
3130 tion to the subject of lightning?

A. Yes, sir.

Q. Well, you know what the reading of the books upon that subject is?

A. Yes, sir.

Q. What is lightning regarded by the authorities to be—what form of electricity?

A. Static electricity.

Q. What do you mean by static electricity?

A. Electricity at an enormously high pressure without great quantity.

Q. Great quantity. What represents the pressure and what represents the quantity of the units? 3131

A. The volts represent the pressure, the ampere represents the quantity—the ampere for a unit of time.

Q. In your opinion, as the result of your reading, is the discharge of lightning necessarily limited to one flash—one line of flash?

A. No, sir.

Q. Can you define what has been said on that subject—are you able to express an opinion on that subject? 3132

A. The lightning frequently divides and travels in several paths. That is due partly to the fact that it rushes ahead and compresses the air in front of it, and in that way causes the path exactly in front of the lightning, after it has travelled a short distance, to be the most difficult path for it to travel, because the air is packed there and it sometimes splits and ramifies.

Q. In somewhat like filiments, if we might describe it so? 3133

A. Yes.

Q. When a discharge of lightning takes place between the clouds and the earth, is there an induced current set up?

A. Yes.

Q. Describe that induced current?

A. When the body of electricity moves from one point to another it changes—of course changes the condition of electrification of the bodies near it, and that sudden change causes a tendency for other currents to move—restores the equilibrium. 3134

Q. What do you find on the subject of deaths produced by electricity, as laid down by the writers?

Mr. Cockran:

Death by electricity?

3135 Mr. Poste:

I do not mean death by electricity, but death by lightning.

A. I find that there have been deaths by lightning, and there have been cases where people have been struck by lightning without being killed.

Q. What explanation do you present as to the latter case—latter class of cases?

3136 A. That the lightning was either insufficient to kill, or that it struck the person in a spot that was not vital, or struck the person's clothing.

Q. A man has testified that he was struck by lightning in the chest—that is, that it passed through his clothing and passed around his body in various positions, down his legs and from one foot to the other, tearing the shoe off his foot; what is your opinion as to that stroke of lightning?

A. The part of the current—part of the stroke—did 3137 not pass through his body, but passed on the outside, for the reason that the body did not offer sufficient accommodation to carry the current down; it had to seek an easier path.

Q. The statement should further be added to this that a tree about 10 feet from him, was, to use his language, stripped. Now, in your opinion, did he receive the main bolt of the lightning or did the tree receive it?

A. The tree received part and his clothing received 3138 part.

Q. In other words, is it your opinion that the current passed on the outside of his body?

A. Yes, sir.

Q. What is your reading upon this subject; in case of a flash that actually strikes a man, or a thunderbolt that actually strikes a man, and penetrates his body; what marks are found upon his body?

A. Burns; sometimes no marks at all; sometimes there are no evidences.

Q. But can you state as to the frequency or infrequency of indications of actual penetration? 3139

A. No, sir.

Cross-examination by Mr. Cockran:

Q. Mr. Wheeler, do you mean to be understood as saying that where lightning kills it does not burn?

A. I say that—

Q. (Interrupting.) Answer that question now: I 3140 don't care what you say. I want to know if you said that—if you did not say that I don't care what else you said.

A. Not always.

Q. Then is there any rule by which you can go about the matter at all, as to whether it will burn or not burn when it kills?

A. You could probably go by rule if you knew the quantity of electricity.

Q. Oh, yes; if I knew something that I don't know 3141 or that you don't know—isn't that so? then I could tell?

A. Yes.

Q. Well, in the absence of that knowledge you can't tell anything about it; it is purely a phenomenon to you, isn't it?

A. Yes.

Q. You see three people sitting at one table; the three are burned; two die and one recover; what 3142 does that indicate to you? Anything that you can explain?

A. Yes.

Q. Now, how can you explain it?

A. It indicates that two of them received the current and the other did not.

Q. The other one is knocked senseless?

A. He received the greater part.

Q. How could you tell—from what outward signs?

3143 Would the man that received the greater burns receive the least or a greater part of the current?

A. The man who had the greater part.

Q. The man who received the burns?

A. Yes, sir.

Q. And therefore he ought to be the one that died?

A. Yes, sir.

Q. Now, it would surprise you to learn that the man that received the greater did not die, and the other did?

3144 A. No, sir.

Q. Why are you not surprised?

A. Because the current might strike him and burn him severely on the surface, and then pass without going through him.

Q. It might; it might just tap and step out of the window, it might step out and bow to him?

A. Yes, sir.

Q. Now, is there anything more than speculation

3145 in that?

A. In what?

Q. In what you have been talking about?

A. Yes, sir.

Q. Now, how much more than speculation is it when you cannot give us any visible sign by which you can judge the accuracy of your books. You said a moment ago that the man who received the greater burning would have received the greater shock, and therefore he would be more likely to die?

3146 A. Ordinarily, yes, sir.

Q. You said that without any qualification a moment ago; now you qualify that, and say ordinarily. Is that what I understand?

A. Yes.

Q. I give you a case which has recently occurred, of three persons sitting at one table, of whom two have died and one has recovered, and he is in this room. Now give me the signs—the visible signs—by which

you can tell which one received the greatest amount 3147
of current, if you can?

A. I don't think you can tell.

Q. If you had told me that first it would have saved a great deal of trouble. You don't know anything about it?

A. About what?

Q. About the signs that would be given by the lightning; you don't know anything about the results of those now? 3148

A. I know something about that, but they are not infallible.

Q. Will you say that they are not reliable?

A. Not reliable; yes.

Q. And if it is not reliable it is not valuable You would not consider it at all unless it is reliable?

A. Yes, I think I would.

Q. You think things that are most reliable may be classed as knowledge? Are they anything more than speculation? 3149

A. Oh, no—

Q. (Interrupting.) Are they anything more than speculations, these conclusions of yours?

A. Yes, I think they are.

Q. Now, then, apply them to this case, if they are. I want to test them right here?

A. This case may be an exception, and still—

Q. I don't know whether it is or not, but if your rule is any good it can apply to this case or any other 3150
case which comes up?

A. Not necessarily, because you may have an exception.

Q. Now, then, can you suppose a rule that, as a class and by recorded instances mentioned by yourself, will show that that is a rule which is even reasonably reliable? Can you do that so that I may take two or three instances and submit them to you?

A. I can say—

3151 Q. (Interrupting.) Never mind that. Can you lay down any new rule on that subject, and if so, I will ask you whether it can be laid down—I will ask you to describe it. Tell me if you can?

A. That the persons receiving the most burns have received the greatest amount of current?

Q. That is it and therefore ought to show the most serious results.

A. Taking the average of a number of persons, yes.

3152 Q. And therefore, in the case of three persons being struck by lightning, the one that showed the greatest burns ought to be the one to die?

A. Taking the average.

Q. Did you ever make that average? Was there ever an average made on it?

A. Yes, sir.

Q. When, and who made it?

A You say was there ever an average made—for this particular problem?

3153 Q. Yes.

A. I don't know.

Q. Then why did you say so?

A. I understood the question to be: Were averages made on different subjects?

Q. That is exactly what I did ask you, so you understood me perfectly if that is what you understood?

A. We had an average here the other day of the resistance of about 260 people.

3154 Q. To an artificial current or a current generated by artificial means. We had testimony about that. I asked you if there had been an average made. You used the word average yourself and I understood and therefore I adopted it?

A. Yes.

Q. Was there ever an average made of cases of strokes by lightning that would enable you to lay down any rule upon the subject as to how far the

appearance of the body would indicate the strength of 3155
the current received?

A. I don't know of any.

Q. That is all that I asked you. Now, when you undertook to account for and explain how a person has escaped, did you indulge in anything more than a mere speculation?

A. Yes, sir.

Q. You did?

A. Yes, sir; I did. 3156

Q. Now, we will take this case that you have just mentioned. You say that the man who shows the larger surface of burning is the one who has received the greatest amount of the current: that is your understanding?

A. That is the probability.

Q. You see you drive me to ask you what you mean by a probability. You use a term so strange. I thought I had it all explored, and now you throw
in a term that makes it almost impossible to follow 3157
you. If you tell me that you don't know anything about it, we will drop the subject; if you don't, I will have to ask you more questions about it?

A. I will tell you as much as I can.

Q. You have not made any great progress. Now, I want to ask you if you can take any given case of where lightning has struck two or three persons, and by the general appearance which those two or three
persons indicate, which would survive and which 3158
would die, according to any rule?

A. I reply that in most cases you will find that the people receiving the greatest number of burns—the greatest amount of burns—are the people who have died.

Q. In most cases?

A. Yes.

Q. Now, have you ever made an average on that?

A. No, sir.

3159 Q. Then, why did you say it? What is your knowledge on it beyond a mere guess?

A. Because I know that is the way the current acts.

Q. You deduce that?

A. Yes, sir.

Q. You deduce that conclusion?

A. Yes, sir.

Q. Therefore, if a man has his body burned all the
3160 way down he has received, according to you, a very great shock?

A. No, because, if he is burned all the way down, it shows that the path is on the outside of him.

Q. Then the more burns he has the less it has penetrated?

A. That fact shows that the current was on the outside.

Q. What do you mean? You said a moment ago that the more extensive the burns the more power the
3161 man received; now, do you mean to modify that?

A. I referred to the burn indicated where the current struck a man and entered his body. This is one which shows that the current did not enter his body, but that it traveled around the outside of it.

Q. Then, according to that, a man who had received a slight burn right here upon his breast would have received a greater shock than a man who is burned all down his body—his clothing all burned
3162 away; is that so? Because I have a question or two to put to you on that, if that is your theory; is it?

A. If the burn is deep, yes.

Q. Of equal depth. Let us equalize the depths now, and let us get one straight answer. We will assume that one man is burned to a certain depth—two men are burned to a certain depth—but the burns in one instance are confined to the point of contact, and in the other it runs all the way down the body which has received the greatest shock, according to you.

A. To answer that I should have to know whether 3163 there was anything near the man to take the current off that point instead of having it go through him.

Q. Can't you tell anything from the burns themselves? My whole question is about that.

A. A man might have had a lightning-rod on him and carry it off.

Q. We will exclude the possibility of his having a lightning-rod on him, and then answer the question, because that is not usual among the witnesses I have 3164 been able to consult?

A. That is just what I said, because I should have to know whether the man had anything near him to carry the current off.

Q. Won't the burns indicate anything? My whole question is turned to that. You have undertaken to give certain answers to Mr. Poste based upon certain appearances of certain burns. Now, I ask you if those burns will indicate anything to you. I don't want you to take refuge in a lightning-rod or anything else. 3165

A. Now, what is the question, again?

Q. I am taking the case of two men who have been burned to an equal depth. The burn in one instance is confined to the chest and in the other instance it travels, maintaining the same path all the way down the leg. Which of those two men received the greater amount of current according to your judgment?

A. In the first instance, I was assuming that there was nothing but the men—no other conductor. In 3166 that case I would say that where it did not burn a path on the inside of the body, but it reached the body, that in that case it entered the body and he got the greater shock.

Q. Now, if you found a case that contradicted that you would immediately assume that something carried it off—that something else came in; wouldn't you? Suppose I give you such a case now where the burn is deeper than in the case of the man who has but a

3167 slight surface burn; would you still stick to your theory?

A. Yes.

Q. And suppose I show you a case where a person who was burned just as you have described, has recovered, and the other person has died; what would become of your theory—would you still stick to it?

A. Yes.

Q. Notwithstanding the fact that it was contradicted by experience? 3168

A. Yes, by one case.

Q. By one case—you would not surrender your theory to one case?

A. No, sir.

Q. How many cases would it take to make you surrender your theory—to convince you that you were all wrong?

A. 10 or 20 per cent.

Q. 10 or 20 per cent. of what?

3169 A. Of the total number of cases found.

Q. So that in order to disturb this theory of yours, which has nothing, as I understand you, to base it on, I would have to ascertain the total number of persons struck by lightning, and then ascertain the number of burns and then make a computation of 20 per cent., and by the time I was able to present that full table to you, you would consider the propriety of changing your theory; is that right? That is about 3170 what I would have to do to convince you that you were wrong?

A. Or let me know in your search how many other cases were found that were according to my theory.

Q. I would have to give you, of course, the whole table. The table would not be complete unless I gave them all. Then you would consider it advisable to surrender your theory; is that right?

A. Yes, sir.

Q. And until that time you would not surrender it?

A. Yes, sir. 3171

Q. And yet that theory is based on nothing that you have ever read or seen. Is it based on anything that you have ever read or seen—any actual experiments?

A. No actual experiments with lightning.

Q. No actual inspection of any person who suffered from it?

A. No, sir.

Q. Did you ever see a person struck by lightning? 3172

A. No, sir.

Q. Now, you testified—you are something of an expert and familiar with electricity—atmospheric and static electricity?

A. Yes, sir.

Q. Do you remember this elaborate statement you gave on the induced current returning after another current had started?

A. Yes, sir.

Q. Is that a demonstrated fact? 3173

A. I have not demonstrated it.

Q. Has any one ever demonstrated it?

A. Do you mean performed the experiment? Yes, sir.

Q. Is it demonstrated by anybody? Never mind my meaning. You understand what is meant by the word demonstrated?

A. Yes, sir.

Q. Now, has it been demonstrated by anybody? 3174

A. I could not say whether it has been proved or not.

Q. Did you ever measure the potential of the air?

A. No, sir.

Q. Did you ever use an electro-meter?

A. You mean a meter for measuring static charges?

Q. Yes, sir.

A. No, sir.

Q. May I ask you what you have learned about

3175 static electricity? How did you equip yourself with the information which justifies you in telling Mr. Poste that you are familiar with it?

A. By reading and by experiments with static electricity.

Q. What experiments have you made with static electricity? You have never taken the potential of the air, have you?

A. No, sir.

3176 Q. Now, will you tell us what experiments you have made?

A. Well, I have tried setting fire to gunpowder by the electric spark. I have tried—

Q. (Interrupting.) By electric spark taken from what—taken from lightning?

A. Taken from a Leyden jar.

Q. Is that an experiment with static electricity?

A. Yes, sir.

Q. You remember your testimony as to lightning?

3177 A. Yes; I remember that.

Q. Did you attempt to use the lightning to set fire to the powder?

A. I haven't any facilities for generating lightning.

Q. I suppose not, but you have for generating guesses about it. Now, will you tell us what you mean by telling Mr. Poste that you were familiar with that?

A. I mean that it has been demonstrated that lightning is static electricity, and I have performed a good many experiments with static electricity. 3178

Mr. Cockran:

That is it. Now we have got it.

By the Referee:

Q. If you should find a burn on the chest, and no evidence of a burn down the body, but a burn on the sole of the foot which, at the time of the stroke of

lightning had been resting on the ground, what would 3179
that indicate to you as to how the current—through what portions of the body—passed through the human body?

A. It would indicate to me that the current had entered at the chest, traveled through the body and out at the foot.

Q. On the other hand, if you should find a burn of that character on the chest, and external burns on the outer portion of the body, what would that indicate? 3180

A. Indicate that the lightning had reached the body at the point on the chest and had then traveled down the outside of the body.

By Mr. Cockran:

Q. Now, Mr. Wheeler, is that anything more than one of your speculations—your answer to the Referee—is that a demonstrated fact, or is it a speculation of yours? 3181

A. Do you mean by "demonstrated fact" anything except in a case where I have seen a man?

Q. If you do not understand what demonstration means I advise you never to take the stand as an expert. Do you know what demonstrated science means? If you don't I would like to know that, because it will simplify this examination.

A. I was asking what you meant by that.

Q. Don't you know what a demonstrated fact is and what is a speculation? 3182

A. According to my knowledge?

Q. Don't you know?

A. Yes; I do.

Q. Now, I ask you if that answer of yours to the Referee can be taken by him as a demonstration—something that is certain—or a mere speculation of yours as to what is probable?

A. I will say that it is my judgment as to the probability.

3183 Q. Now, you have been asked what the measure of electrical energy was—I think by Mr. Poste; wasn't you?

Mr. Poste:

No, I guess not: I don't remember asking that question.

Mr. Cockran:

3184 You asked what the measure of power was in an electrical current. (To the witness.) And you said the volt, didn't you?

A. I don't remember that.

Q. What is the volt?

A. The volt is the unit of pressure of electricity.

Q. What is the ampere?

A. The unit of quantity of the electricity.

Q. What would give you the unit of power—electrical power? 3185

A. The combination of the two.

Q. What is the name of it?

A. The Watts.

Q. Now, when you speak of these electrical currents that are proposed to be given to Kemmler, how many Watts would you give him?

The Referee:

3186 The question assumes that it is for the purpose of killing.

By Mr. Cockran:

Q. Yes; how many Watts would you call that?

A. 1,000 Watts.

Q. 1,000 Watts?

A. Yes, sir.

Q. And it is 1,000 volts, I think you said?

A. Yes, sir.

Q. Did you mean to say that the volt and the Watts is the same? 3187

A. No, sir.

Q. The Watts is the product of the ampere measurement and the volt measurement?

A. Yes, sir.

Q. How many amperes would there be used?

A. One.

Q. Isn't it usually run at a higher rate than one ampere—that machine?

A. Which machine? 3188

Q. This Westinghouse dynamo you have described here as the instrument designed for this execution?

A. Repeat the question, please.

Q. I say, isn't it usually run at a higher rate than one ampere?

A. Do you mean is it capable of generating more than one ampere?

Q. Yes.

A. Yes, sir. 3189

Q. Isn't it usually run at that when it is used to supply thirty lamps, or whatever it supplies?

A. Yes, sir.

Q. How many amperes, then, would it show?

A. About thirty or forty, I believe.

Q. Thirty or forty amperes?

A. Yes, sir.

A. If, then, it is run at the ordinary rate, how many Watts would Kemmler be likely to receive? 3190

The Referee:

Assuming that he got 1,000 volts?

A. I think he would receive in the neighborhood of one ampere.

Q. How many Watts?

A. One thousand Watts.

Q. But supposing it was running at the rate of thirty amperes?

3191 A. Yes, sir.

Q. One thousand volts?

A. Yes, sir.

Q. How many Watts would that make?

A. That would make 30,000 Watts.

Q. Then, is that about what he would get?

A. No, sir.

Q. About how many would he get?

A. About 1,000 Watts.

3192 Q. Because it is only run at one ampere; is that the idea?

A. No, sir; I said the machine is usually run at thirty amperes.

Q. Then if it is run at thirty amperes and 1,000 volts, as it is usually run, how is he going to escape with only 1,000 Watts?

A. I didn't say he would get thirty amperes.

Q. How many amperes would he get?

A. About one.

3193 Q. Now, you fix that on account of the resistance of the body?

A. Yes, sir.

Q. And according to that the resistance of the body would be about thirty times greater than the usual resistance that it meets; would it mean at the rate of thirty amperes?

A. Yes, sir.

Q. I understood you to say a short time ago that it was only about four times greater.

3194 A. No, sir; I was talking about the arc-light circuit.

Q. Isn't that an arc-light circuit to be used?

A. Incandescent circuit.

Q. What is the difference in the resistance of the two?

A. That depends upon the number of lamps.

Q. Take the number of lamps, you know this machine that is going to be used here—how many would he get?

A. In a general way? 3195

Q. You understand it pretty well; you have seen it in operation?

A. Yes, sir.

Q. Now, you know about what the resistance of the wire through which that current is run, don't you?

A. The resistance of the wire has very little to do with it: it is the resistance of the lamps.

Q. Take the resistance of the lamps. What proportion does it bear to the resistance of the arc lamp? 3196

A. It would be about—it would be about thirty-three ohms, I think.

Q. What proportion does that bear to the resistance of the arc lamp?

A. It is about one-eighth.

Q. About one-eighth?

A. Yes, sir.

Q. So that the arc-lamp resistance is about one-eighth times as great?

A. The arc lamp—I thought you said the whole 3197 arc circuit.

Q. I mean the whole arc circuit.

A. The whole arc circuit has the resistance of that.

Q. Of the circuit of these incandescent lamps?

A. Yes, with the full complement of lamps connected to it.

Q. With each one?

A. No, with a full set of lamps that is to be supplied by the dynamo. 3198

Q. What is the unit of electrical quantity by which it is measured?

A. The ampere.

Q. Did you ever hear of a coulon?

A. Yes, sir.

Q. What does that indicate?

A. That indicates the same thing.

Q. Then a coulon and an ampere are the same thing?

3199 A. No, sir.

Q. You said a moment ago that they both indicated the quantity. Is one of big measure and the other of smaller measure?

A. The coulon is an ampere flowing for a fixed length of time; namely, a section.

Q. That is your definition of a coulon?

A. Yes, sir.

Q. Now, Mr. Wheeler, you say that a Wheatstone

3200 bridge is absolutely to measure the resistance of different substances, including the human body?

A. Yes, sir.

Q. Do you still insist upon that—did you ever experiment upon it so as to ascertain?

A. Yes, sir.

Q. Did you find that the human body will present always the same amount of resistance?

A. It depends upon how it is treated.

Q. I put you right as you stand now into a Wheat-

3201 stone bridge, or subject you to the Wheatstone bridge, and take your measurement, and it will indicate a certain number of ohms, will it not?

A. Yes.

Q. Now, suppose in five minutes afterward I put you in again under precisely the same conditions—do you mean you will show the same resistance?

A. Under precisely the same conditions?

Q. As nearly as they can be ascertained?

3202 A. Whether it can be ascertained or not depends upon the method you use.

Q. We take no method with you at all—we put you right in as you are?

A. You cannot do it.

Q. Why cannot I put your hands in connection with this instrument?

A. That is more definite.

Q. Well, of course I did not suppose as you stood, now; I mean without stripping you, or washing you, or going through the preliminaries that we have testified to here? 3203

A. Yes, sir; do you mean letting me grasp the wires connecting with the bridge?

Q. Yes, I mean to take any test, so long as you repeat it under the same conditions?

A. If you put the wires in my hands you would probably be unable to repeat the same experiment.

Q. Then you would show variations in the measurement? 3204

A. Yes, I probably would.

Q. Which would be the accurate measurement, the first or the second?

A. Those would be measurements of the resistance of the conductors, and not of my body.

Q. How would you get the resistance of your body? Let us understand that—pardon me, is there a fixed resistance of your body—an invariably fixed resistance —a resistance we could set you down at and cast you up whenever we had a mind to, or is your resistance 3205 a thing that varies from hour to hour, or from day to day?

A. It probably varies very slightly.

Q. Is it substantially the same then? Are you talking from knowledge or from speculation now?

A. I am talking from knowledge.

Q. Why did you answer me then, which is merely guess work?

A. You are asking my opinion. 3206

Q. I was not, because I understood you to testify positively about this, and you did in answer to Mr. Poste. Now, do I understand you to say that the testimony that you gave in relation to the capacity of the Wheatstone bridge to measure resistance was purely speculation?

A. No, sir; it was all positive.

Q. Then it is knowledge—you speak from knowledge?

3207 A. You asked me first about the Wheatstone bridge: now you are asking me about the resistance of bodies.

Q. I am asking you now about the capacity of the Wheatstone bridge to measure, that is all?

A. That is perfect.

Q. About that you have perfect knowledge?

A. Perfect knowledge.

Q. Now, would the Wheatstone bridge record your measurement so that we could put it down and fix it, 3208 so that we could understand that the measurement was the same all the time; is it a thing that varies from hour to hour—your resistance?

A. That question is not complete.

Q. Well, complete it then, and perhaps I will put it—see if you can put an addition or two to it and make it look symmetrical?

A. If you make a good connection with my body, having a large surface, so that the resistance of my contact shall not be a considerable factor in the meas- 3209 urement but the circuit shall be the resistance of the body itself, you will get approximately the same resistance in each case.

Q. What do you mean by approximately?

A. Well, within 1-10.

Q. Within 1-10?

A. An amount that may be described—

Q. It did not vary more than 1-10, is that what I understand you to say?

3210 A. Yes, sir.

Q. Now, let me see. According to that then, if your resistance was taken to-day and taken in precisely the same manner to-morrow, and so on for a week, you would show the same degree of resistance right along by the Wheatstone bridge?

A. Approximately the same.

Q. You mean within 10 per cent?

A. I mean within 10 per cent.

Q. Are you quite clear about that?

A. Yes, sir. 3211

Q. And that you would be under all conditions and circumstances, providing the contact was made exactly in the same way?

A. In the way I described?

Q. Yes; are you quite sure about that?

A. Yes.

Q. Mr. Wheeler, what do you base that on?

A. On anything—

Q. (Interrupting.) Actual experiments? 3212

A. No, sir.

Q. What do you base it on?

A. On experiments of the resistance of various substances and calculations that would apply to this question.

Q. You said a moment ago that you spoke from positive knowledge?

A. I was speaking of the bridge.

Q. I am speaking of the capacity of the bridge to measure human resistance. We all know that the 3213 bridge is absolutely reliable as far as metals is concerned, and substances of that kind—inorganic substances—but the question is whether you will swear that the Wheatstone bridge can accurately measure the resistance of a human body?

A. The capacity of the Wheatstone bridge for measuring is absolutely perfect.

Q. The question is, whether the resistance of the human body varies? 3214

A. Well, that would be the same thing, because if the resistance varied all the time it would not be of much use in taking it at one time, if you were not satisfied that it would remain at that.

Q. Now, that is about what I want to get at—can the resistance of the human body be fixed by any means by the Wheatstone bridge or anything else?

A. Are you asking for my opinion?

Q. No, I am asking for your knowledge, first?

3215 A. I have no positive knowledge.

Q. That is all right—now let us get down to the conductivity of the body. You told Mr. Poste that if a man were suspended by his feet or his heels, that he would not get any current at all—am I right in that?

A. Yes, sir.

Q. Could you tell me what would have kept him in that interesting position?

A. I cannot.

3216 Q. It would be a phenomenon to you?

A. Yes, sir.

Q. Well, if you were given a wire, and given a man hanging by his feet, right in front of you there, all your hypothesis would be at sea; wouldn't it?

A. The man would—if the man kept his feet turned around so as to form a hook he would hang there.

Q. Without the electrical influence?

A. Yes.

3217 Q. He could do that with a rope?

A. Yes.

Q. But in the absence of the rope, a man hanging from a wire, suspended by no visible power that you saw—if you saw that, it would upset the calculation you made?

A. No, sir.

Q. It would not?

A. No, sir.

3218 Q. Then it comes into your hypothesis?

A. I should think that very likely the man was, his feet were turned up in some way, so that they would catch on the wire.

Q. I am excluding that; I have excluded ropes, eccentricities of wire, and everything of that kind.

A. And the man is not touching anything?

Q. And the man is touching nothing except the air and the wire?

A. Only one wire?

Q. Yes; he isn't held by a cord around his waist 3219
nor anything else; would that upset all your hypothesis?

A. Unless I could find some other cause for his hanging there.

Q. It would?

A. Yes.

Q. Unless you could find some other cause it would upset all your present conclusions, wouldn't it?

A. Oh, not at all. 3220

Q. It would upset all your present conclusions as to the power of the current, wouldn't it?

A. No, sir.

Q. There would be a power that you couldn't estimate—couldn't understand?

A. It would be the man I couldn't estimate.

Q. Then it would be the man. You don't think that there is any possibility that it would be the current that you couldn't estimate—that mysterious
power couldn't come from the man himself, could it? 3221

A. It couldn't come from the current.

Q. That is your judgment. You don't claim to know anything about a current really, except what has been discovered by other persons? You don't claim to know what a current is, do you?

A. Not thoroughly, of course.

Q. Do you even imperfectly; now, do you know anything about it beyond certain manifestations that you see of its effects? 3222

A. Well, I have an opinion about it; I couldn't prove it.

Q. You have got an opinion?

A. Yes, sir.

Q. And you couldn't prove it?

A. No, sir.

Q. Now, is your opinion anything more than a case of speculation again—we will use the word?

A. It is a speculation in which a great many men agree.

3223 Q. Generally men do agree in speculations and some differ in them. Now, I give you this instance. There is a person suspended in the way that I have described. Wouldn't that be an evidence of power in the electrical current that you do not understand now?

A. No, sir.

Q. It wouldn't?

A. No, sir.

Q. Why? If that electrical current held that man
3224 in the position that he was in—

A. (Interrupting.) Oh, if it held him in that position.

Q. Yes, I am excluding any other possibility of anything else. That would be a power that you don't understand, wouldn't it?

A. There would be something there that I wouldn't understand.

Q. Give me a candid answer. It would be a power of electrical current that you wouldn't understand;
3225 isn't that so?

A. I don't know whether it would be the electrical current; it might be something else.

Q. I have endeavored to put my question excluding everything but the possibility that a man was held there by the current. I have done that 20 times.

A. Well, then I should say there was something new there.

Q. Something incomprehensible to you?

3226 A. Yes.

Q. Wouldn't that have the effect of disturbing all your hypothesis; wouldn't you have to go and study the subject all over again to reconcile that with your previous opinions?

A. It depends on what that developed—what it showed was the new thing.

Q. I am giving you the naked facts as they stand; wouldn't that disturb your hypothesis?

A. Not necessarily; it might strengthen the ideas upon other points.

Q. Then, if it strengthens them it would, to that extent, be an additional study, wouldn't it? Wouldn't you regard something that would corroborate the previous conception in the character of a new discovery? 3227

A. New discovery, yes; but not upsetting my previous ideas.

Q. It would affect them?

A. It would increase it.

Q. It would affect them? 3228

A. Yes, sir; it would affect them.

Q. Either to increase them or disturb them—reject them?

A. Yes.

Q. But it would show an important bearing upon your conceptions—your prior conceptions—wouldn't it?

A. Not necessarily.

Q. In other words, you wouldn't let go your prior conceptions, you wouldn't let much disturb them. You stick to that: is that the idea? 3229

A. No, that isn't the idea.

Q. In this whole science, as you have explained it to us, it is wholly experimental and speculative, isn't it?

A. I didn't say so.

Q. Let me ask you? Did you say so?

A. I think not.

Q. Would you say that this entire matter of electrical science is largely experimental and uncertain? 3230

A. I should say not.

Q. You would regard it as an exact science?

A. It is neither exact nor largely experimental.

Q. Do you think one-millionth part of the power of electricity has been discovered, or of its character or nature?

A. Yes, sir.

Q. You do?

3231 A. Yes, sir.

Q. You don't agree with those who think that electrical power could be generated, yet that might be powerful enough to create an earthquake?

A. That is a question of science—not a question of power.

Q. Wouldn't that have something to do with science; wouldn't the development of its power tend to make you ignorant of its nature?

3232 A. It might help us, too, in this, of its nature, but the mere working of a large machine, capable of developing a current of large amount, does not change the science at all.

Q. Nobody has said it does; it applied it; and in applying it it generally develops it?

A. Does what?

Q. Doesn't the application of it to science replace new facts and new theories?

A. It brings a new application to it; it doesn't help
3233 us much to the study of its laws.

Q. Isn't it by the application that you judge its laws?

A. No.

Q. How have the laws been discovered, so far even as they have been known, except by the manifestations that have been visible to man? Show me some other way?

A. Certainly, by the manifestations.

3234 Q. That is what I asked you?

A. But not by practical use in commerce.

Q. You are now in a state of absolute ignorance as to what a current is, ain't you?

A. No.

Q. You are not?

A. No.

Q. You know something about it, do you?

A. I think I do.

Q. Tell us what it is; go on.

A. It is a— 3235

Q. (Interrupting.) You are speaking from knowledge—you say you know it?

A. I cannot prove it.

Q. You cannot prove it?

A. No; you are asking me my opinion, aren't you?

Q. No; if you will at once concede that it is experimental we will go on to the question of opinion; but you say you have some knowledge?

A. It is understood.

Q. What do you mean by understood, may I ask— 3236 that is, you think? Isn't it your belief?

A. We believe, yes.

Q. Does not that show that it is merely experimental, that it isn't understood science. Do you claim knowledge on the subject yourself now, or do you claim anything more than a belief and deduction founded upon certain premises?

A. I claim a deduction which accounts so perfectly for the phenomena we see that it may be accepted as 3237 knowledge.

Q. That you may accept it as knowledge which may be reported?

A. Yes.

Q. Haven't the conclusions of scientific persons on this subject been modified from year to year as fresh evidences of electrical power have been discovered?

A. Yes.

Q. Doesn't that show that the thing is in a progres- 3238 sive or experimental stage at the present time?

A. Yes.

Q. Don't you think I am justified in saying that it is so far an experimental science, that it hasn't reached the degree of exact science?

A. I said it was not an exact science, but I said it was not all experimental to the extent of our knowing a millionth part.

Q. Do you think now we do understand one millionth part.

3239 A. I do.

Q. What do you base that on, when you don't know anything, according to your own confession?

A. If we have a theory of its action which works, we know more than a millionth part.

Q. That is if you theorize. You cannot give but an impression as to what causes the lightning. That is definite and certain. That is admitted by everybody. Now, you told me a moment ago that was all 3240 speculation, didn't you?

A. No; I didn't say it was all speculation.

Q. You didn't say it was all speculation? I will have to go all over that again and bring it back to the same point. Now, think well about it and see if you didn't tell me that when we left the question of lightning we had agreed that it was speculation?

A. I believe you asked me if it wasn't. You put in—inserted the statement that everything was speculation—that I admitted everything was speculation 3241 because I said I couldn't prove that if certain conditions arose such and such a thing would happen.

Q. You remember the hard task you gave me to upset one of your theories?

A. Yes.

Q. I admit that your theories are probably as well founded in your mind as your conclusions?

A. Yes.

Q. But that is not the question. The question is 3242 if you cannot concede for the purpose of this trial that the entire electrical science is largely—is entirely, I will say, in the experimental stage yet?

A. No; it is not.

Q. Then you can tell me something that is fixed by knowledge, if it isn't?

A. Yes.

Q. Now, tell me what it is?

A. The action of currents under all circumstances—

Q. Under all circumstances? 3243

A. Under many circumstances, sir, the amount of current—

Q. What is the current? There, you see the current lies at the base of it all?

A. The current is the progress of action in substance in conductors by which energy is carried in the shape of electricity.

Q. Is that a conclusive explanation, or is that merely a speculation—a deduction. I think deduction 3244 is a more agreeable word to you, therefore I will use it. Is that a deduction or is it an ascertained fact —what you have told us now?

A. That is a definition.

Q. Is it an ascertained definition? Is it a definition of ascertained reliability or is it simply the best definition that can be given under the circumstances?

A. I do not know that it is the best definition that can be given.

Q. If I ask you to define a straight line, you can do 3245 it with certainty?

A. Yes.

Q. If I ask you to define any substance that is known to nature you can define it?

A. Not all of them.

Q. Anything that is known and understood?

A. Yes.

Q. You can define, for instance, the component parts of air and water? 3246

A. Yes.

Q. Can you define electricity with anything like that certainty? Take your electrical current that you talk of?

A. Yes; you can.

Q. You can?

A. Yes.

Q. Therefore it is fixed—the character of electricity is fixed and ascertained?

3247 A. You said with anything like that certainty.

Q. Yes; but of course if it is anything like that certainty it is absolutely certain?

A. No; it may be something like and not absolute.

Q. When you speak of like certainty you mean similar certainty? You are a scientific man?

A. You said anything like that certainty. You mean anything like an approach to it.

3248 Q. When did you first hear the term—that is, the word—like certainty meant similar certainty? You are an expert, you understand?

Mr. Poste:

He may not be in metaphysics.

Mr. Cockran:

No; but he is in these scientific terms.

3249 The Witness:

Let us begin again? what do you want to get at?

Q. I am trying to get at what you told me a long time age, Mr. Wheeler, but which you have since taken all back. I simply want to know whether the definition which you have given of electricity—electrical current—is an opinion based on scientific knowledge or based merely on belief—speculation—deductions—anything you like? Is it knowledge or is it speculation?

3250 A. I said an electrical current is a progress.

Q. I know your definition. I am merely asking you whether that definition is based on knowledge or whether it is speculation?

A. I say that is a statement of what occurs in the conductor.

Q. Are you quite sure that that does occur in the conductor?

A. I am quite sure.

Q. We asked a very eminent expert here, Dr. Rockwell, as to what occurred, and he said he couldn't tell? 3251

A. Is he an electrician?

Q. Yes, and a doctor, and he was asked, and he tells me he cannot tell how an electrical current works, whether it is something that progresses or whether it is a change of atoms, or what it is?

A. Yes.

Q. Now, can you tell us with knowlege on the subject, Mr. Wheeler, because, if you can, I want to take off my hat to you as a special indulgence of my feelings. Now, can you state what an electrical current is? 3252

A. I cannot tell you precisely what it is.

Q. How easy it would have been to have done that first?

A. Yes.

Q. Mr. Wheeler, you were attending some experiments on dogs: that is a thing you can remember? 3253

A. Yes.

Q. You saw how many dogs killed?

A. Five, I think.

Q. Five dogs, altogether?

A. Yes.

Q. And they took varying degrees of electrical energy—power—didn't they?

A. Yes.

Q. Have you any knowledge of the age of these animals? 3254

A. No.

Q. Whether they were respectable or vagrant, whether they were well-fed animals or whether they lived by their wits?

A. No, sir.

Q. You cannot tell anything about that?

A. No, sir.

Q. Could you even tell that they were dead?

3255 A. Yes.

Q. How would you tell that, Mr. Wheeler; if they looked that way, is that it?

A. They looked that way; they lay still without moving; their hearts didn't beat?

Q. You felt their hearts?

A. Yes, one of them.

Q. One of them, only?

A. Yes.

3256 Q. Now, Mr. Wheeler, did you read of the post mortems that were made upon these dogs by the physicians?

A. Yes, sir; carelessly.

Q. Were you present at any of them?

A. At one of them.

Q Did you see the one where the heart continued beating—the ventricle of the heart?

A. No, sir.

Q. You didn't see that one?

3257 A. No, sir.

Q. Suppose you had seen that, would you still have considered that the dog was dead—I mean that the dog had been dead when the dissection began?

A. Well, I am not a physician, as I said before, and that brings up a question of the definition of what dead means.

Q. You wouldn't like to approach that subject?

A. I think not.

3258 Q. In point of fact, now, in one particular dog you felt that his heart had ceased to beat?

A. Yes.

Q. You put your hand on his heart?

A. Yes, sir.

Q. And could you find the local habitation of the dog's heart?

A. No, I just laid my hand on him and found that he was quiet, and it was an hour or two after the experiment, and he was absolutely motionless.

Q. He remained perfectly still? 3259

A. Yes, sir.

Q. You didn't come back ten hours afterward to see if he was still?

A. No.

Q. How long did these experiments take, Mr. Wheeler?

A. How many days?

Q. I understood it was two days.

A. I was there two days. 3260

Q. How many hours altogether?

A. About two hours, I think.

Q. Now, you have said that this dog didn't get any shock at all to speak of—this dog Dash—that stood upon the wire and fell in a heap?

A. No, I didn't say that.

Q. I thought you said that he got an infinitesimal shock—just a little thing that he ought to take as a playful attention?

A. The dog that was against the rusty telegraph wire? 3261

Q. Yes.

A. I said that he got a small part of the current from the electric-light wire.

Q. How do you know that, that he got a part: is that a fact, or is that another belief of yours; is it impossible that he could have got the whole of it, or is that another belief of yours?

A. It is an impossibility, because a large part of the current would have traveled on the electric-light wire. 3262

Q. Suppose it is—isn't there a tendency in all currents to seek the ground?

A. No.

Q. Even where there is a connection made between the ground and the current?

A. Not at all.

Q. How do you know that the larger portion of the current would continue to travel through the main

3263 wire—the larger portion of the current. Is it impossible that it should travel down through the rusty wire?

A. That the whole of the current, or that half of it?

Q. That the main portion, say six or seven hundred volts, or a thousand?

A. It is—

Q. I am assuming that the insulation is scraped off and the wires brought in actual contact?

3264 A. Yes, the rest of the circuit continuous?

Q. I suppose so.

A. Then I should say it was impossible.

Q. About what proportion do you think he would receive? Is there any way of measuring it?

A. There would be a way of measuring it, if you were there on the spot.

Q. I mean from this distance, now?

A. No; no way?

Q. Then you wouldn't undertake to say it was a

3265 a small current at all; it may have been three-quarters of the current; mightn't it?

A. No.

Q. Why do you say it wouldn't be three-quarters? What means have you that enable you to say that?

A. Because the resistance—the conductivity of the other path would be so much lower than the path through the iron wire and the dog that most of the current would go in that way.

3266 Q. That would be your belief?

A. That would be my conclusion.

Q. Why wouldn't it all go that way, then?

A. Because there is another path offered by the rusty wire and the dog, and, as I said early in the examination, the current divides between paths inversely as to the proportion of resistance.

Q. Then, if you calculate at that rate, we will ultimately find your judgment as to about how much the dog got?

A. That would be nothing but an opinion. 3267

Q. Then, is that all that you can tell us about it, whether he got the whole or half or three-quarters?

A. No; I say he got a small part, but as to the exact amount I cannot tell.

Q. Will you tell us what you mean by a small part?

A. I mean a quarter or an eighth.

Q. Now, I understand you to say positively, Mr. Wheeler, that you don't recognize in electrical science the existence of a tendency of an electrical current to seek the ground where a conductor is offered to it? 3268

A. Of any electric current?

Q. I mean of an electrical—alternating—current such as we are talking of here. You say that where a pathway is offered for it to reach the ground there is no tendency for the current to go toward the ground?

A. No: without any further conditions?

Q. I am giving you the conditions; take this very condition now of a rusty wire crossing him and connecting it right with the ground—you say that wouldn't develop any tendency in the current to seek the ground? 3269

A. The current wouldn't go to the ground at all, unless there was another connection provided for the line, so that it could come up again.

Q. I understand that, but we have at the other end of the wire a man knocked out on the ground?

A. I do not know that that was the same wire.

Q. Yes; assuming that to be the fact, would that change your answer any?

A. That there was another man knocked down by the same circuit at the same time. 3270

Q. At the other end, and then it trails upon the ground?

A. I do not understand the question; I would like to have it put more definite.

Q. The other end of this wire, which came across the electric-light wire; it was a wire that was pulled down, as I understand it?

3271 A. Yes.

Q. And fell across it, and there were men reeling it up at the other end?

A. The iron wire?

Q. Yes?

A. Oh, that had nothing whatever to do with it.

Q. It doesn't change at all your convictions on that subject?

A. No.

3272 Q. What do you suppose burned this dog; do you think he was burned by simply throwing a match on him?

A. No, I think he was burned by a part of this current going down to the wire and coming up again.

Q. How much do you think it would take to burn the dog—start this process of combustion?

A. Oh, I couldn't do anything more than guess at it; about an ampere.

Q. Then you couldn't tell us?

3273 A. About an ampere, or quarter of an ampere.

Q. There is a great difference between that—an ampere or a quarter of an ampere. Can we guess between those limits for ourselves; is that your answer?

A. Yes.

Re-direct examination by Mr. Poste:

3274 Q. Mr. Wheeler, please explain your use of the word Watts in regard to this dynamo that may under proper—certain—circumstances develop a current of 37 amperes?

A. The Watts is the unit of electrical energy, and it represents the quantity of current of one ampere driven by a pressure of one volt; a one volt-ampere is a Watts. It takes 746 times that to make one horse power.

Q. What determines the amount of current that passes through a certain conductor, giving the voltage?

A. The tendency is to drive the current through the conductor and the resistance of the conductor to the current. 3275

Q. Then the 37-ampere passage represents simply the alternation of current that may be produced under the most favorable possible circumstances for the conduction of the current; is that true?

A. Yes.

By the Referee:

Q. It is true with this limitation that the element of resistance of the lamps and things through which it is passing determines the amperes? 3276

A. That determines how much of the 37 will be on the machine.

By Mr. Poste:

Q. I am talking of the contact, without reference to the lamps at all. Thus, if you had a thousand volts and a thousand ohms resistance, what would be the current—what would be the ampere of quantity that you got? 3277

A. One ampere.

Q. That is according to what is known as Ohm's law?

A. Ohm's law.

By the Referee:

Q. When you get the 37 amperes then, of course, you have got 37 times as much resistance? 3278

A. No, one thirty-seventh as much; 37 times as much opportunity for the current to go out of the dynamo and go through the circuit.

Re-cross-examination by Mr. Cockran:

Q. You said that there would be no burning in a case of the application of these electrodes in the way that has been described for this execution. Did I understand you to say that in answer to Mr. Poste?

3279 A. I do not remember that.

Q. You say that where there is burning there is an evidence of poor contact, I understood you to say?

A. Yes.

Q. Then all these men that have been killed had poor contact; didn't they?

A. Very poor.

Q. They didn't get the full amount?

A. No.

3280 Q. They were all burned, weren't they; every one that you ever saw?

A. I don't know.

Q. Was Quinn burned?

A. I am informed that he was.

Q. You don't think he had good contact?

A. No.

Q. Where a man seizes hold of the two poles of a dynamo—the switches—and he is but slightly burned on the hand, you think he had good contact?

3281 A. No.

Q. You wouldn't?

A. No.

Q. He had a better contact than if he was badly burned, hadn't he, according to your theory?

A. Not necessarily; he might be burned by something else.

Q. By something else?

A. Yes.

3282 Q. Is there anything in electricity that we can admit upon a definite rule, that there wouldn't be some circumstances that we cannot see?

A. It isn't the electricity.

Q. Is there anything such as the conditions of his hands, or the moisture of the skin, or the condition of the atmosphere, or the temperature of the body? Does not all that have to be borne in mind, every similar manifestation of power?

A. No, not in every case. If you have a sufficiently large and good contact, metal electrode, it is as I have 3283 said in my testimony in regard to the contact.

Q. Then it is—my desire is to contract, such as the moisture or hardness of the skin.

A. I might in that case—I say that is the object of the contact.

Q. You have always to consider these circumstances—take them into consideration?

A. In those cases of accidents?

Q. Now, in your testimony, I understood you to 3284 say that there could be no burning at all if the contact were properly made, in the case of a human being? Am I right in that?

A. If the contact was applied for the purpose of avoiding the burn, yes. That is what I mean by properly applied.

Q. Of course, that is what we both mean. Is it possible to make such a current as that?

A. Yes.

Q. How? 3285

A. By covering a large part of the surface of the body with a conducting substance.

Q. Moistening it?

A. Well, moistening it, or causing the contour of the electrode to fit the surface and removing the oily substance from the skin—the oily substance being an insulator.

Q. Now, assume that it did not kill the man, wouldn't it burn him after a while?

A. It would burn him if you put on enough current. 3286

Q. Well, put on 1,000 volts and an ampere?

A. That wouldn't.

Q. That wouldn't burn him at all? Sure about that?

A. With a proper contact.

Q. I mean with any contact that you have ever seen—I do not mean an imaginary contact, now—such

3287 a contact as is practical—that you will swear can be given—not that you will swear might be made, but will swear can be made?

A. You are asking my opinion?

Q. Yes. No, I am asking you first about that connection where no burn would occur?

A. I have never tried, therefore I cannot have any.

Q. And what you have said on that subject is entirely a matter of opinion, isn't it?

3288 A. It is a matter of deduction and opinion, yes.

Q. Well, supposing we have that current going through a man for about five minutes; what would the effect on his body be?

A. It would raise his temperature slightly—probably would hardly be noticeable—perceptible.

Q. Wouldn't hurt him at all?

A. Oh, it would kill the man.

Q. I am assuming it didn't kill him. Suppose it continued five minutes without killing him? What
3289 would be the condition of his body about that time?

A. In what respect?

Q. I mean as to pain—would it appear to the ordinary eye the same as it appeared before the application?

A. A thousand volts, one ampere?

Q. Yes; such a current as this we are talking about?

A. I should say that my opinion is that the man's
3290 body would probably be in a strained position.

Q. Strained slightly, or thoroughly strained?

A. Not slightly strained—

Q. Slightly strained, just as a man might, in waking from a pleasant sleep, stretch himself.

A. Oh, no; thoroughly strained.

Q. Such a strain as might be made by a machine?

A. Yes.

Q. Wouldn't it be a stronger strain that could be made by any machine that you know of—a more violent strain?

A. I do not know. 3291

Q. Wouldn't it be likely as a matter of opinion—now I will ask you, as a matter of opinion—wouldn't it be a more violent strain than any that could be caused by any machine that you know of? Wouldn't it be like pulling him apart?

A. You can make a machine to pull a man apart, therefore it—

A. Are you sure it would not?

A. I haven't seen it done. 3292

Q. That is, you don't know from knowledge?

A. I know, yes, but I couldn't prove it without trying.

Q. Surely a matter of knowledge is a matter of demonstration; if you know it you can demonstrate it. You mean to say you strongly believe it; isn't that it?

A. I do.

Q. You don't know anything about it. Now, Mr. Wheeler, did you hear Mr. Edison say that in about 3293 five minutes he would be mummified—you weren't here yesterday?

A. Part of the time.

Q. Did you hear that testimony?

A. I heard some of it.

Q. Do you think he would be mummified in five minutes?

A. It depends on the current used.

Q. I am speaking of the current—we have a current here? 3294

A. I didn't hear Mr. Edison say that a man would be mummified with a thousand volts.

Mr. Poste:

He didn't say that—a thousand volts.

Mr. Cockran:

I think he did.

3295 The Witness:

No, sir.

Mr. Cockran:

I certainly asked him.

By Mr. Poste:

He said he couldn't fix the time.

Q. Regardless of the division of time—there is a 3296 difference of opinion about that—do you understand what he meant by mummification at any time?

A. Yes, sir.

Q. Did you ever see anything of that kind done? Can you imagine such a state of affairs?

A. Yes, sir.

Q. Can you imagine a body deprived of its moisture?

A. Yes.

3297 Q. That would be by the application of heat?

A. Yes.

Q. If the heat was great enough to mummify the man, wouldn't it be great enough to burn him?

A. No, sir.

Q. You make a distinction between the mummification that would consist of exhausting the water in the system by heat and an ordinary burn?

A. Oh, a decided difference.

Q. I think so, too: now, we agree, Mr. Wheeler. 3298 Now, how long would it be before the man would change—how long would it be before this strained feeling that you have described would set in?

A. That would occur instantly with the application of the current.

Laverda Adams, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

By Mr. Cockran: 3299

Q. Mr. Adams, where do you reside?

A. Pound Ridge.

Q. Westchester County?

A. Westchester County.

Q. Now how old are you, Mr. Adams?

A. Forty-four.

Q. Did you have any experience recently with lightning?

A. I have. 3300

Q. Just tell it to the Referee, if you please?

A. I can't tell the first part of it. I can tell the last part of it.

Q. Tell us just exactly—just tell us as much as you can?

A. Well, I suppose I was struck by lightning.

Q. Where were you at the time when you lost consciousness?

A. At the tea table.

Q. Who were with you; your family? 3301

A. Yes, sir.

Q. Well, will you name your family; just describe who it consisted of?

A. My wife, two boys and three daughters, and my uncle—my wife's uncle.

Q. You were sitting around the table?

A. We were sitting around the table.

Q. Just describe what occurred?

A. Well, the bolt came down the chimney—supposed to. 3302

Q. You lost consciousness?

A. I lost consciousness, certainly.

Q. How long ago was this?

A. The 19th of April. The first thing I knew I was out doors—had been taken out—that was the first part. I knew about the rest.

Q. What did you say?

A. I said that after I came to, I remember that part.

3303 Q. Tell us all that occurred after you came to. Where did you find yourself?

A. I found myself out doors in the hail and rain. They came to take me into the house and put me to bed, and went for a doctor.

Q. Were you thrown outside?

A. No, I was taken out by my son. I suffered a good deal of pain all night.

Q. Were there any wounds on your body?

3304 A. Yes, sir.

Q. Are they on it yet?

A. Yes, sir.

Q. Where?

A. On my arm, leg and ankle.

Q. All on one side of your body?

A. Oh, no; not all on one side. This arm (indicating).

Q. Is it all on one side of the body?

A. No; on both sides.

3305 Q. Just show us how it traveled?

A. This arm, across the back of my neck, across here, down this arm, down this leg to here, all the way down this leg and out of this shoe.

Mr. Poste:

You had better mention the arms and legs so that the stenographer can get it.

Q. Will you tell us about how you were sitting when the stroke came?

3306 A. I was leaning back from the table, sitting in this way (indicating).

By the Referee:

Q. With your hands clasped over your head?

A. Yes.

By Mr. Cockran:

Q. Now, is there a continuous mark across your back, or does it commence here and come out again?

A. I guess it runs across my back now so that it shows, but it is worse in some places than others; it shows a scar right down the shoulder. 3307

Q. Where did it go in?

A. It went in this arm, I suppose—left arm.

Q. Is this left arm wounded all the way down?

A. Yes, from here, (indicating) down to here (indicating), spots all the way there; went through my fingers.

By the Referee: 3308

Q. Across your hand, down; is it marked?

A. Yes, sir; across my hand.

Q. I mean that hand—on your other hand?

A. Yes, sir, that is a burn.

By Mr. Cockran:

Q. Where did it go out—the right side?

A. This knee, I suppose.

Q. Is there any mark connecting this one with your arm? 3309

A. I do not know as you can see it all the way down, but at the time there was.

Q. At one time did it connect the whole way?

A. No, I do not think you could connect it all the way across here; I don't think you could connect it all the way.

Q. It was a wound running up here to your shoulder?

A. Yes. 3310

Q. And then beginning here on the right hip, was it?

A. Round down this right arm and down the right leg, off the knee.

Q. Did it go on any farther than the knee?

A. Not on this side.

Q. Did it on the other side—on the left side?

A. On the other side it went out of my heel.

3311 Q. Went down the side?

A. Yes.

Q. So that the trace was observable?

A. Yes.

Q. Was there a burn there?

A. You couldn't connect the burn all the way down, as I know of.

Q. I know; but were there burns in places?

A. Oh, yes, certainly; burns in places all along.

3312 Q. Between your left side and your heel, where it went out; there was no continuous burn there?

A. No, there was not.

Q. There was just a mark anywhere on your side?

A. Yes.

Q. Where?

A. It hit down through here (indicating).

Q. And then stopped and came through your heel?

A. Went through here (indicating) and came through here again (indicating). 3313

The Referee:

That means it went down his left side, crossed over to his right leg, and then onto his left leg again, and down to his heel.

Q. Do you say that it went along your leg, or it came out in spots?

A. Spots.

3314 Q. On your left side?

A. On my left side.

Q. How far down did it run, this wound?

A. On the arm?

Q. Yes.

A. It runs from there (indicating) down about all the way.

Q. Where, on the body?

A. That is the left arm.

Q. The left arm down the whole way?

A. Yes. 3315

Q. Now, on your body, where did it strike?

A. My left shoulder, that spot across here.

Q. It commenced at the right shoulder and came partially across your chest?

A. Yes.

Q. Then suspended and came out of your side?

A. Yes, stopped here.

Q. On the left side?

A. On both sides.

Q. There was a space of clear flesh between that on both sides? 3316

A. Yes, certainly.

Q. Then it came out where?

A. From here (indicating) and then the mark on that side came here (indicating).

Q. On the right thigh?

A. Yes, and off the right knee.

Q. And then on the right knee?

A. Yes. 3317

Q. Are there any further marks on your right knee?

A. It commenced here and made a jump.

Q. It left your hip?

A. Yes.

Q. Then it left your hip and came out on the inside of your right thigh?

A. Yes.

Q. Then it went there? 3318

A. Yes, sir; went here; the calf of the leg.

Q. Were there any other persons hit at that time?

A. Yes, sir.

Q. Who?

A. My daughter and uncle.

Q. Your uncle?

A. Yes, sir; my wife's—and my wife.

Q. Were there any of them as badly wounded as you were?

3319 A. I think not, from what I hear; I do not know; I didn't see them.

Q. Why?

A. Well, they died.

Q. The other three died?

A. Two of them; my wife didn't die.

Q. Your wife has recovered?

A. Yes.

Q. The other two died?

A. Yes.

3320 Q. How long after the stroke did they die?

A. The next morning.

Q. Next morning?

A. Yes.

Q. About 12 o'clock?

A. Not so long as that.

Q. How long were you confined to bed, Mr. Adams?

A. Three weeks.

3321 Q. Were you paralyzed at all during the time?

A. At the first.

Q. You were paralyzed at the first; how long were you paralyzed?

A. About three days before I could use the right leg to amount to anything.

Q. When did you get the use of that—was that the first member that you got the use of?

A. I got use of my right arm that night.

3322 Q. You were three days paralyzed?

A. Yes.

Q. And by that time you were able to use your legs?

A. Yes.

Q. Were your clothes burned off in the passage of the current?

A. Yes, sir.

Q. And your shoes?

A. One shoe.

Cross-examination by Mr. Poste: 3323

Q. Mr. Adams, was the house struck?

A. It was.

Q. Any damage done to the house?

A. Yes, sir.

Q. What was it?

A. It tore it about all to pieces.

Q. Was the chimney torn down?

A. Yes, sir.

Q. Did you sit close to the chimney? 3324

A. No, sir; I was close by the window.

Q. Did I understand you to say that you were sitting at the tea table?

A. Yes, sir.

Q. And the meal was done with and you were leaning back?

A. I just got through eating; I was waiting for the old gentleman to finish his meal.

Q. How many out of the number were killed? 3325

A. Two.

Q. Your uncle was one?

A. My uncle.

Q. Your daughter?

A. Yes.

Q. How old was she?

A. Nine years old.

By the Referee:

3326

Q. How old was your uncle; you have described him as the old gentleman?

A. Seventy-two, I think; he was thereabouts.

By Mr. Poste:

Q. Who was close to the chimney?

A. My daughter; she didn't sit nearest; she sat close to it.

3327 Q. Where was the old gentleman?

A. Not the daughter that was killed, I don't mean.

Q. How many daughters were there there?

A. Three.

Q. Where was the daughter that was killed?

A. Sitting at the table.

Q. How far was the table from the chimney?

A. Six to seven feet.

Q. Where did she sit?

3328 A. She was sitting near the chimney.

Q. On that side?

A. She was on that side of the chimney, with the table toward the chimney.

Q. Where did your uncle sit?

A. On the opposite side of me.

Q. Opposite side?

A. Yes, on the side of me.

Q. Now, you said you thought you supposed that the current came down the chimney—what had

3329 you in mind that led you to that conclusion?

A. I judged from the looks of the building, as near as I could see that. I could see it when I got around again.

Q. What appeared upon the building?

A. The chimney was all blown out; it is a two-story and a half building. The chimney was all blown out in the attic and came down the stove-pipe and knocked the stove-pipe all to pieces.

3330 Q. Was it raining at the time?

A. It wasn't raining at the time I was struck.

Q. Did you see any flash yourself?

A. Nothing at all.

Q. Was there any tree near there that was struck at the same time?

A. Yes, sir.

Q. What tree was it—how large a tree?

A. Well, probably fourteen inches through at the butt.

Q. How far from the house? 3331

A. Right side of the house.

Q. The same flash?

A. Supposed to be.

Q. Right opposite the house. What was the effect produced upon the tree?

A. It struck it about half way in the center of the tree, and I do not think—I think it went to the ground; I won't be positive of the fact.

Q. Any other tree or structure around there? 3332

A. Yes, sir; a pear tree.

Q. How far was that from the house?

A. Ten or fifteen feet.

Q. Any other tree?

A. No other tree.

Q. No other tree? Was there anything else?

A. There was a log in the wood-pile.

By the Referee:

Q. Do you mean to say this pear tree was struck, too? 3333

A. Yes, sir; it struck it half way up.

By Mr. Poste:

Q. What effect did it produce on the pear tree?

A. It struck it about half way up.

Q. How large was the pear tree?

A. Ten inches through—ten inches through at the bottom. 3334

Q. You say it struck it half way up. What effect did it produce?

A. Just took the bark off the outside; that is all.

Q. You say there was a large log struck? How far was that from the house?

A. Twenty feet.

Q. What effect did it produce on that log?

A. Split it all to pieces.

Q. Was there any object around there struck?

3335 A. Another tree—a small maple tree that is standing on the bank.

Q. How far from the house was the small maple tree?

A. Thirty-five or forty feet.

Q. What effect was produced on that?

A. It took the bark off of it, and went out at the bottom of the tree—tore the ground up.

Q. Where did it strike the trunk of that tree?

A. About six feet of it.

3336 Q. Six feet from the ground?

A. Yes.

Q. What was the condition of the ground around the roots of those trees?

A. Well, grass ground.

Q. I mean after the shock; was it torn up?

A. Nothing at all; only the maple tree.

Q. What was observed about that?

A. The ground was torn up at the foot of that.

3337 Q. Now, you have described the path of the current upon your own body; is that description based upon your observation or what was told you?

A. From my own observation.

Q. Are the scars left now?

A. Yes, sir.

Q. When you say you were paralyzed, you laid in bed how many days?

A. I laid in bed about three days, I think it was, before I could use this elbow—left elbow.

3338 Q. Did you remain in bed after that?

A. Certainly.

Q. For what length of time?

A. Three weeks.

Q. Were those marks on your arms in the nature of burns?

A. Yes, sir.

Q. Was the skin broken in any places except where there was a burn?

A. I don't call it a burn, exactly; the skin was broken; it might be a burn. There are places on my arms that are burned; practically sore—it is different from a burn. When they were first done they were black. 3339

Q. You were leaning back in the chair with your arms up over your head?

A. Yes, sir.

Q. And you think you received the current—you probably don't know?

3340

A. I don't know.

Q. Was there anything in these marks which indicated where the current began?

A. Nothing at all, only supposition about it; I think it struck my arm first.

Q. Was there any broken place on your arm—any wound produced as if an instrument had been driven into it?

A. No, sir.

Q. Was there any such wound on any part of your body? 3341

A. Well, there is a spot on this arm here—that scar there (indicating) looks as if there was something struck me. It tore the spoons and knives and forks all to pieces, and broke all the dishes on the table.

Q. When you first noticed that spot on your arm what appearance did it present?

A. It just looks as if something had hit me there.

3342

By the Referee:

Q. That is on the inside of the wrist of the left arm?

A. Yes.

By Mr. Poste:

Q. Was the skin broken when you first observed it?

A. The skin was broken and settled in just as if something hit me. I don't know as it had; I cannot tell about that.

3343 Q. Was there any wound aside from the burn, or something of that nature, on your feet?

A. Nothing.

Q. What effect did you say it produced upon your shoe?

A. Tore the shoe—part of it to pieces.

The Referee:

Q. Your left shoe?

3344 A. Yes, sir.

By Mr. Poste:

Q. Did it destroy the other shoe?

A. The other shoe; that is the mate to it (indicating); they were nice shoes.

By the Referee:

Q. Then it didn't have any effect on the other shoe?

3345 A. Not on this shoe; it went out of the shank; it had a steel shank. It went through the shank—followed the shank and came out here (indicating).

Q. At the bottom of the foot?

A. Yes.

By Mr. Poste:

Q. Now, I will ask the question as distinctly as I can, Mr. Adams. Do you know whether the bodies of 3346 these persons who were killed by the shock, or who met death, whether they were burned in any place?

A. I do not; I did not see the bodies.

Q. What is your business, Mr. Adams?

A. Shoemaker; woodchopper.

Q. Where do you live?

A. Pound Ridge.

Q. What physician attended you in the family?

A. Olmstead.

Q. Olmstead?

A. Charles O. Olmsted. 3347
Q. Where do you live?
A. Krause River.

Mr. Cockran:

The witness is perfectly willing to show you the wounds.

The Witness:

I will show you my arms if you want to see them. 3348

Adjourned to Thursday, July 25, at 10 A. M.

NEW YORK, July 25, 1889.

Met pursuant to adjournment.

3349

Present, counsel as before.

JOSEPH OCKER, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

Q. You reside in the city, Mr. Ocker? 3350
A. Brooklyn, sir.
Q. Have you employment in this city.
A. Yes, sir.
Q. With whom?
A. Biernam, Heidelberg & Co.
Q. Where is their place of business?
A. 616 Broadway, New York City.
Q. How long have you been with them?
A. Seven years.

3351 Q. Do you remember an accident that occurred at their place of business, 616 Broadway, in April, 1888?

A. I do, sir.

Q. Just describe what took place.

A. It was in the early part of the day—

Mr. Cockran:

When was this?

3352 Mr. Poste:

April, 1888.

The Witness:

A gentleman came in who was supposed to be a lineman and asked Mr. Heidelberg for permission to pass through the window and fix the wires. Mr. Heidelberg gave him permission. He opened the window and stepped out of the window—two or three minutes after that he was dead. 3353

Q. Where did you stand?

A. I stood 175 feet away from him.

Q. You saw the man go to the window?

A. I saw the man go to the window.

Q. Then did you see him a few minutes after that?

A. I did.

Q. Describe how he lay.

A. Well, he had one arm over the sign—first, when I saw him he had his head resting on top of the sign.

3354 Q. That is, the sign in front?

A. That is the sign in front of the building; yes, sir.

Q. This was on the second floor?

A. Yes, sir; this was on the second floor. He had one hand on the wires—the right hand.

Q. How were his knees?

A. He was kneeling down on the iron plate.

Q. Iron plate; was that the window sill.

A. Yes, sir; window sill.

Q. Was he taken away? 3355

A. He was.

Q. About how long after that?

A. Half an hour or three-quarters of an hour after that.

Q. Where did the wire run that he had his hand on?

A. Across the road.

Q. You understand that was an electric-lighting wire?

A. Exactly. 3356

Q. Did you not have electric lights in the store?

A. We had, but we had not them in use at the time; they were supposed to be dead wire.

Q. Were you afterward subpœnaed to appear before Coroner Levy?

A. I was.

Q. What was the man's name?

A. Mr. Murray.

Q. Did you give the same testimony before the Coroner that you gave here? 3357

A. Yes, sir.

Q. About how long was that after the accident?

A. About two or three weeks, more or less.

Cross-examination by Mr. Cockran:

Q. Mr. Ocker, you were engaged in that store, I believe?

A. Yes, sir. 3358

Q. You are an assistant?

A. Yes, sir.

Q. How long before you saw the man after he went out of the window—how long before you saw him again?

A. Dead?

Q. How long a time elapsed between his going out of the window and your seeing him?

A. About two or three minutes.

Q. Two or three minutes?

3359 A. Yes, sir.

Q. Have you a distinct recollection of the time, or is that an impression?

A. That is an impression.

Q. Did you examine the body?

A. Not at all—looked at it.

Q. Did you see any burns on him?

A. Yes, sir.

Q. Was he extensively burned?

3360 A. Palm of his hand—right through to the palm—

Q. What hand was burned?

A. The right hand burned on the palm.

Q. Was he burned anywhere else.

A. According to the smoke he must have been burned on the leg.

Q. You saw his leg smoking?

A. Yes, sir; I saw the smoke coming through his pants.

Q. You saw his leg smoking?

3361 A. Yes, sir; exactly.

Q. Was there a smell of burning flesh?

A. Yes, sir.

Q. And he died?

A. He was dead before I saw him.

(At the request of Mr. Poste, who stated that he would not be able to place a witness on the stand until 12 o'clock, the hearing was adjourned until 12 M.)

3362

After recess.

Bernard J. Hughes, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows?

Direct examination by Mr. Poste:

Q. What is your business, Mr. Hughes?

A. I am a dynamo engineer, sir.

Mr. Cockran: 3363

What, Mr. Hughes?

The Witness:

Dynamo engineer.

Q. Where are you now employed?
A. With the Western Electric Company.
Q. Where were you employed in September, 1887? 3364
A. With the Harlem Lighting Company.
Q. Where were their works situated?
A. 242 and 244 East 122d Street.
Q. Do you know one George Schnitzer?
A. Yes, sir.
Q. Was he in the employ of the same company?
A. He was.
Q. What was his work?
A. He was inspector of lamps at night, while running. 3365
Q. State what happened to him in September, 1887, in your own words?
A. He came down to the basement where three of us were sitting together and walked under a pilot lamp from the Thomson-Houston system which hung—must have been about five feet from the ground—the bottom of the lamp—he struck that lamp with his hat.
Q. This hung over a dynamo?
A. Yes, sir; as a pilot lamp. 3366
Q. Yes.
A. He struck that lamp with his hat and he stepped down off a small platform, about two or three inches from the ground, and turning around struck the lamp with his hat. He was then standing on a damp foundation with a direct connection with the earth; he put up his hand—I cannot say which hand—and he fell down immediately.
Q. Did you go up to him?

3367 A. We were up there within half a minute.

Q. Well, state how he looked?

A. He was gasping then; his eyes were turned glassy. I immediately saw that he needed a doctor and I went across the street—directly opposite the station—for Dr. Hay; I am positive I had him within three minutes of the time the boy was shocked. When the doctor looked at him he felt of his pulse—or for his pulse—and said that the case needed the Coroner in 3368 place of him. However, to be positive, he gave him an injection of brandy under the skin—a hypodermic—and it done no good.

Q. Did the boy continue in that position?

A. He never moved—never murmured from the time he fell.

By the Referee:

Q. I understood you to say it was under his feet. 3369 You say he stepped off the platform; what was it made of?

A. The platform was made of planks.

Q. Wet?

A. No, sir; he stepped down on to a wet foundation.

Q. Stone?

A. Yes, sir; stone and cement.

By Mr. Poste:

3370 Q. How long did the boy remain there?

A. After he pronounced him dead we carried him over to the platform of the engine room and laid him there, and, as I supposed, they sent for the Coroner.

Q. He was there when you left the works at night?

A. No, sir; the boy was there, not the Coroner.

Q. When did you next see the boy?

A. I saw him lying in the ice-box in his aunt's house.

Q. When?

A. Next night; Sunday night. 3371

Q. What do you know about the wire of that dynamo with which that lamp was connected being grounded?

A. As far as I have evidence of the man in attendance and the foreman of construction—

Mr. Cockran:

State only what you know, not what you heard.

3372

Mr. Poste:

You need not say what you heard.

Mr. Cockran:

Unless you know it of your own knowledge.

The Witness:

I heard it.

3373

Q. Did you make any test of that?

A. Yes, I also made a test of that with a magnet.

Q. State what was done?

A. The wire was grounded under the Harlem river with an iron cable, and that being under the ground—it was two currents that killed the boy.

By the Referee:

Q. What was the force that was being generated there by this system? 3374

Mr. Cockran:

What force—with what voltage?

The Witness:

It was a fifty-light machine, forty-five volts each light.

3375 *Cross-examination* by Mr. Cockran:

Q. It was 2,250 volts, then?

A. Yes, sir.

Q. Was the boy burned any?

A. No, sir.

Q. Where did it come in contact with him? Did you examine his hand?

A. Yes, sir.

Q. How old was the boy?

3376 A. To the best of my judgment, about twenty-one.

Q. When was this, Mr. Hughes; when did this occur?

A. About the latter part of September, 1877—or 1887, rather.

Q. Was there any attempt made to give him artificial respiration?

A. No, sir; excuse me, the doctor did try; yes, sir.

Q. How did he give him artificial respiration?

3377 A. By an injection under the skin.

Q. That was the means?

A. Yes, sir.

THEODORE LEHMANN, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste:

3378 Q. What is your business?

A. I am assistant to Mr. Kennelly, the chief electrician in the Edison laboratory.

Q. Have you recently made some experiments to ascertain the resistance of human bodies to the electrical current?

A. Yes, together with Mr. Kennelly.

Q. Have you the result of those experiments now upon paper?

A. I have only noted the results of my own experiments made at Bergmann & Company's here in New York City, taken day before yesterday. 3379

Q. That was with the Wheatstone bridge?

A. Yes, sir; that was with a Wheatstone bridge, and with a deflection galvanometer, and we used it in all those experiments we took at Orange, and I used four Fuller cells, each giving two volts; altogether eight volts.

Q. What form of electrodes did you use in making those experiments? 3380

A. The same electrodes as we used in all of them; two copper plates about one-thirtieth of an inch thick and I think about sixteen inches long by eight inches broad. They were fastened to—those copper plates were fastened to copper wires and these wires were to connect it directly to the bridge.

By Mr. Cockran:

Q. Mr. Lehmann, you say that the time was not always the same in either of these cases? 3381

A. No, I did not take it with a watch; I did not take them at a second.

Q. Would not a minute of application make a great difference in the resistance?

A. Yes, sir; I have taken—

Q. Pardon me, that is an answer. Was not the time an important element in this complication?

A. I do not understand.

Q. Was not time an important element in this complication? 3382

A. The time was almost—I know what time it takes. I did not take it with a watch and I did not think it essential; that is always thirty seconds, but it ranged; the test never lasted above thirty-five seconds, and never was less than twenty-five seconds.

Q. How do you know?

A. I am sure it was not.

3383 Q. You imagine that; you believe that, but do not know it; you have not tested it?

A. No, I did not test it with a watch, that is true.

Q. Don't you know that if you apply an electrical current to a person, even for a few seconds, that the resistance will diminish?

A. Yes, I know that.

Q. That being so, was not the computation, even in seconds, at the time of application an important element?

3384 A. I do not understand your question; did you ask me a question?

Q. I say, was it not important that you should ascertain the actual time employed in making each of these tests?

A. I thought it certainly important, but I had no more time; I had to get through in one day—through the whole amount, about 250.

Q. So that you were in a hurry?

3385 A. No, I was not in a hurry at all; I did not conduct my tests in a hurry.

Q. Why did you not take the time of the contact?

A Because my watch was smashed by the journey, and my watch was broken.

Q. Your watch was broken?

A. The glass was broken and my watch was not a second hand; I could not take it.

Q. You did not have the right kind of a watch?

3386 A. No, I had a watch—

Q. You did not have the kind of a watch that was necessary for such a test?

A. Quite so.

Q. Were these resistances taken from the hand?

A. Yes; the hands were immersed in these jars, containing caustic potash, so that just the hands were stretched out and the man touched always—I assured myself that the man in every case touched the bottom of the jar and the copper plates.

By the Referee: 3387

Q. Touched the tips of their fingers to the bottom of the jars?

A. Yes, sir; and for about every 15 tests I filled up the jars with the same solution again in order to keep the same amount there.

The paper is marked "People's Exhibit C, July 25, 1889."

3388

By Mr. Poste:

Q. I hand you another paper which was produced by you and ask you what that paper is?

A. This paper contains the resistance of 256 men employed at Bergmann & Co's., in Avenue B. 292 to 298, of this city.

By the Referee:

Q. You mean the single paper that you are now looking at, or the whole series that you have in your hands? 3389

A. The whole series.

Q. How many are there in your hands?

A. One—six.

By Mr. Poste:

Q. These measurements were taken in the same way as those mentioned in the paper which is now in evidence? 3390

A. Those tests taken in Orange, do you ask me?

Q. Were those tests taken in the same way as you have already described in the case of these measurements on the paper already in evidence?

A. Yes, sir.

The paper is offered in evidence by Mr. Poste.

3391 By Mr. Cockran:

Q. Those are single tests?

A. Yes, sir.

The paper consisting of six sheets is marked "People's Exhibit D, July 25th, 1887."

Cross-examination by Mr. Cockran:

3392 Q. Mr. Lehmann, did you test the resistance of the coils in the resistance box in making these measurements?

A. We are using those resistance coils every day in the laboratory.

Q. Won't you answer the question I put to you?

(Question repeated.)

A. No, I did not; but we know that these resist-
3393 ances are right because we use them every day in testing wires.

Q. Did I ask you that, Mr. Lehmann, do you know—did I ask you that?

A. No.

Q. Now, won't you be kind enough to tell me what I asked you—will you just answer that question, did you test them?

A. No, I did not.

3394

Re-direct examination by Mr. Poste:

Q. What information have you as to the accuracy of the Wheatstone bridge used by you in those tests?

A. You ask me about the accuracy?

Q. What is your opinion of the accuracy of the Wheatstone bridge?

A. My opinion of it is that the Wheatstone bridge is in every case accurate.

Q. And this particular Wheatstone bridge you believe to be correct? 3395

A. Yes, sir.

Q. Have you in mind any operation, recently carried on by you, which indicated to your mind the correctness of it?

A. Yes.

Q. Describe it—that acted as a shock upon it in any way. Have you any such in mind?

A. I do not think, if we have to be in some cases very accurate, and if Mr. Edison and Mr. Kennelly, who is a man—you know him—of thorough knowledge of electricity—both of them—if they use a bridge in order to get exact measurements, I expect that the bridge is correct. 3396

Mr. Cockran:

You see he has built his faith upon rock.

Mr. Poste: 3397

That is true.

By the Referee:

Q. You are using this bridge every day to get measurements?

A. Every day.

Q. Does it give the same results?

A. Always the same.

Q. That it has heretofore? 3398

A. Yes, sir.

Q. From day to day with the same results?

A. From day to day with the same results.

Re-cross examination by Mr. Cockran:

Q. Let me ask you—could you measure the resistance of anything with the Wheatstone bridge?

A. Of anything?

3399 Q. Yes?

A. I measure the resistance of anything with the Wheatstone bridge.

Q. Could you do it? Is it capable of giving you accurate measurement?

A. I do not understand the question, and therefore I cannot answer it.

Q. I am sorry I cannot make it plainer.

A. I am not very long in this country and I do not understand you. 3400

The Referee:

What he means, witness, is this: Is there anything that you cannot measure the resistance of with the Wheatstone bridge? Is there any substance known to you that cannot be measured with it?

The Witness:

3401 We can measure with the Wheatstone bridge every conductor of electricity.

Q. Now, would you measure the insulation resistance of a cable with the Wheatstone bridge, for instance?

A. Just as well.

Q. Have you ever measured the resistance of cables?

3402 A. Yes; not the resistance of a cable. I have measured the resistance of the park lines in Orange—electric-light lines.

Q. I am asking you about cables?

A. No.

Q. Would you use the Wheatstone bridge to measure a very high resistance?

A. Yes, sir.

Q. Would you measure the resistance of a battery with the Wheatstone bridge?

A. Yes, sir. 3403

Q. Tell me, before you take the measurement of any substance, don't you take the temperature of it?

A. It is necessary in order to be very accurate.

Q. Did you take the temperature of these gentlemen whose resistance you measured?

A. No; that is impossible. I think it is always the same.

Q. Did you take the temperature of these gentlemen whose resistance you measured? 3404

A. We have to take the temperature if we want to be very accurate.

Q. But you don't think it is necessary to take the temperature of the men to be very accurate?

A. No, because the physicians are sure that the normal temperature of a man is always the same in every case.

Q. Are all men normal?

A. I expect they are.

Q. All men are normal? 3405

A. Of normal temperature.

Q. You assume that?

A. And one degree centigrade, which is always a very high difference in temperature, would not make so much difference.

Q. How much difference?

A. I don't know the constant for a difference of resistance of human bodies, because we never took measurements of that. 3406

Q. What was the size of the electrodes that you put into the hands of these persons?

A. I don't know it quite exactly now.

Q. Wouldn't the resistance vary with the size of the electrode?

A. No.

Q. It would not?

A. No—the resistance.

3407 The Referee:

He had some plates which were placed in the jars and he said he caused the party to put the tips of their fingers in the caustic solution, but not upon the electrodes.

Mr. Cockran:

The solution was an electrode, I understand.

3408 The Referee:

That may be so.

Q. Was not the solution an electrode there?

A. Yes, sir; and in the solution was a copper plate.

Q. What was the electrode that came into contact with the man?

A. It did not come in contact with the man only, the solution.

Q. Is not the solution an electrode?

3409 A. Yes, that is an electrode.

By the Referee:

Q. How much quantity of sulphate was there—the solution—how much was the quantity of it?

A. It was about, I dare say, five-eighths of a gallon.

Q. Five-eighths of a gallon of what?

A. Five-eighths of a gallon of caustic solution, containing ten per cent. hydro-caustic potash solution.

3410 By Mr. Cockran:

Q. Well, the men put their fingers into the solution without touching the copper plate?

A. Yes, sir.

Q. Are you sure of that, now?

A. Yes, I assured myself of those things.

Q. And they did not touch the copper plate.

A. They did not touch the copper plate.

Q. Now, what distance was each man's hand from the copper plate? Did you measure that?

A. They touched with the tips of the middle finger 3411 the centre of the jar. The jar was so small that the men could only put their hands in; they had to squeeze it together. They did not touch the copper plate.

Q. Can you tell what distance?

A. The jar was only so broad that when they drew out their hands they had to strain them to get them out.

Q. Can you tell whether each man had the same 3412 temperature or whether there was a variation? Did you look at that?

A. That would not be essential at all.

Q. I did not ask you that? We have our own opinions. Can you tell me about that?

A. No, I cannot tell about that.

William D. McQuesten, called as a witness on behalf of the People, being duly sworn by the Referee, 3413 testified as follows:

Direct examination by Mr. Poste:

Q. What is your business and profession, Mr McQuesten?

A. I am contractor on electric light and power plants and electrical engineering, pertaining to the same business.

Q. How long have you been engaged in electrical 3414 pursuits?

A. Since March, 1881.

Q. Have you made a study of the subject scientifically—somewhat?

A. Somewhat, so far as pertains to the practical question at issue of contract work—building of plants.

Q. Have you had experience in the practical operation of dynamos?

A. Yes, sir.

3415 Q. Mr. McQuesten, when two paths are offered to a current of electricity, what is the law which determines the direction to be taken by the current?

A. The flow of current is universally proportionate to the resistance of the two paths offered.

Q. I read a statement of facts to you which has been testified to in this case: "A rusty telegraph wire on a dry day hangs across an electric-light wire, with underwriter's insulation thereon; there is on the electric-light wire an alternating current under pressure of 3416 1,000 volts; 600 lights; one end of the telegraph wire is around a winding reel, the other end of the wire hangs down over the electric-light wire and lies upon the ground; a large, shaggy dog runs against the hanging wire on that side where it lies upon the ground; he receives the shock; falls on the wire; falls to the ground, lying on the wire; he lies there for ten minutes; receives burns; is apparently dead but revives after some hours." Please state your scientific 3417 deductions as follows: Could the dog under those circumstances have received all of the electric current passing over the electric-light wire?

A. Taking the statement to mean the ordinary condition of affairs on an electric-light circuit with such a wire hanging over it and grounded, the dog would not receive all of the current.

Q. Now, what is your opinion upon this question: If the entire current had been diverted from the electric-light wire by the telegraph wire, would not both 3418 wires have been fused at the point of contact between the two wires during the ten minutes.

Mr. Cockran:

What is that question?

Mr. Poste:

Q. As to the probability or not of fusion of the two wires at the point of contact during the ten minutes, if the entire current had passed from the electric-light 3419 wire to the telegraph wire—

A. If the two wires had been bare at that point of contact there would be a slight fusion or burn noticeable; a slight noticeable fusion would have been produced at the point of contact.

Q. Now, in endeavoring to arrive at the ascertainment of how much wire—how much current is diverted from the electric-light wire in such a case as that described—what elements have to be taken into 3420 consideration?

A. The resistance of the first contact between the electric-light wire and the grounded wire; and secondly, the resistance at the point of contact between the earth and the grounded wire; and did you ask about the quantity of flow of current?

Q. No, I have not asked that yet. I asked you what elements had to be taken into consideration?

A. In ascertaining the quantity?

Q. In endeavoring to arrive at some ascertainment 3421 of the quantity?

A. And also the electro-motive force of the current?

Q. Can you give any estimate of figures as to the relative conductivity of an electric-light wire—copper wire—insulated electric-light wire and common telegraph wire somewhat rusty; which is the better conductor?

A. Well, if you take an ordinary electric-light wire 3422 —if you mean an arc wire such as we commonly see in the street, and the ordinary iron telegraph wire, the electric-light wire is much the better conductor; of course that is purely a question of experiment.

Q. Is there another element which enters into such a question as this, namely, of a groundage somewhere also—

A. What is that?

Q. Is there another element which enters into such

3423 a question as that which I have just asked you—must there be—in order to have a passage of electricity down the telegraph wire—must there necessarily be a groundage somewhere on the electric-light wire—a leaking to the ground?

A. Either on that circuit or on the dynamo itself—there must be a second point of contact in order to complete the circuit at all.

Q. Will you explain what is meant by arc and 3424 illustrate how it might be formed in cases of accidental contact?

A. An arc is the flow of current through the atmosphere between two points which are of different potentials; that is conductors of electricity.

Q. Does an arc indicate good or bad conduct between two objects?

A. Commonly speaking it indicates no contact—there is no contact between the points as to what is conductivity there—there is a path.

3425 Q. Well, a person receives burns from electrical conductors—burns upon the hands by grasping it; is there an arc formed in such cases as that usually?

A. Usually there would be at the time of letting go.

Q. The fact that burns are received in cases of contact, what does that indicate to your mind as bearing upon the question of the character of the contact being good or bad?

A. Indicates high resistance of contact—commonly 3426 poor contact.

Q. Poor contact?

A. Poor conductivity.

Q. Of course the resistance of poor contact is very much stronger than the resistance or is higher than the good contact relatively to the connection of the conductor?

A. Yes, poor contact means, in common parlance, high resistance.

Q. What is your opinion as to this? I call your attention to the testimony of a man of which the following is a statement: That in August, 1883, immediately after a 25-arc light Thomson-Houston dynamo had been started, he went to the dynamo and found that one of the brushes was sparking—drawing a long spark—that he started to draw the brush and took hold of it between the fore and second finger and thumb; that the minute he touched the brush he was grounded on the floor and that gave him a jump, and when he jumped he shoved the other hand up and tried to save himself; that he gave a yell; that the other hand touched the other brush; that his head bent over against the iron frame of the machine; that the right hand touched the negative brush, and that he immediately lost the power of vision and consciousness; that the dynamo was in a cellar upon which a floor of spruce boards was laid; this floor was generally damp; it was seldom dry during a freshet; the floor was wet at this time; that in order to get to the dynamo room he had to walk quite a distance upon wet earth and that in that way he got his shoes moistened. He said, "All that I could tell was that I received a shock; knew nothing until the time that I was recovering from the shock, several hours later;" that all the skin upon his buttocks was completely scorched off and the flesh completely raw; that the same evening he slid down two flights of stairs upon his backside to get down stairs before his folks came; that when he fell to the floor at the time of the shock he pulled the brush out of its clamp and broke the circuit. That he did not know how many lamps were burning at the time of the accident; that he thinks there were about 31 or 32 lamps on the circuit; that it was early in the afternoon; that there was no voltmeter connected with the dynamo; that the regulator was down; that he thinks his hands touched respectively the positive and negative brushes of the machine; that each hand was slightly burned between 3427 3428 3429 3430

3431 the fingers; that he slid down the stairs, not down the balusters; the witness's person shows a small white scar on the side of the second finger of the right hand at the junction of the second finger with the third finger and a small scar on the second finger of the left hand. Now, assuming the foregoing statement to be true, please state your views, first in regard to what actually happened and whether he could have received all of the current that the dynamo was then producing?

3432 A. It was rather a complicated condition of affairs, both electrically and physically.

Mr. Cockran:

So he thought, Mr. McQuesten.

The Witness:

Yes, I judge so, but under the ordinary condition of affairs as outlined in the statement, it certainly is not 3433 probable that he could have received the entire current of the machine, whatever that may have been at the time.

Q. Please give your reasons?

A. Well, in the first place a man taking a brush off of the commutator of a machine, or for the purpose of either resetting it, sliding it along on the commutator, or examining it, is not likely to put his hand on 3434 the revolving commutator, and certainly not on a Thomson-Houston commutator, because he would get caught, and he would not be likely to manipulate the brush with one hand while the other hand was on the commutator.

Q. Could he manipulate the brush very easily with one hand?

A. He could not reset it; it would be possible; it is not probable and unless he did that—

Q. Yes, go on?

A. Unless he had the brush in one hand and the brush-holder in the other hand, which is an abnormal condition, we suppose, or unless he had hold of the brush and brush-holder, and, removing it from the commutator, and placed his hand or some other part of his body on the machine, he would not get a full shock. Now, there is another way that he might have got the full shock. It would be by having the other pole of the machine grounded and then by running against the iron frame work of the machine and then taking a brush from the commutator and then he would get it. It is not probable, as I said before, that a man would take the brush off the commutator. 3435 3436

Q. That is the statement of the man. Now, take this machine which he describes here as a 25-arc light Thomson-Houston machine, what is the resistance—what would be the maximum resistance of the circuit of such a dynamo—the circuit used in connection with such a dynamo?

A. While the lamps were burning it would be in the neighborhood of 100 to 120 ohms. 3437

Q. How would the condition of things which is described here in this statement—would the law of the division of the current with reference to the commutator which you have already mentioned come in this case—the lamp circuit—he says the lamps were burning—the lamp circuit was very much lower than his could be in any event. Then in case the condition was as he described it, could he have received any more than his proportion of the current which was represented by the proportion between his resistance and the resistance of the circuit? 3438

A. No, taking the statement as I interpret it, from what you have read.

Q. I call your attention to another statement made by a witness: In the station of the Keystone Light & Power Company, in Philadelphia. I received a shock from an alternating current of an ordinary Westing-

3439 house alternating machine. I had my right hand on one of these bars from the machine "on the main switch-board" and had a short wire in my other hand, with which I was trying the ground detector on the other bars, not knowing that the lower bars were charged; I was not looking at just what I was doing; this wire was just a piece of scrap wire picked up—a piece of insulated wire. Of course I bared the end of it where I was touching the wires with it—the bars—
3440 fixed up the ground detector to an artificial ground, so that I would know just what the matter was; I made a connection between the ground and the ground detector; I was touching these bars, first one end and then the other, and then something attracted my attention and instead of putting the wire on it I put my hand on it (meaning one of the bars), I got the back of my hand up against it—the upper bar—and I let go; when my legs gave way under me I drove myself into it and fell on my knees, as far as I can recollect; I
3441 am not quite clear about it. I was quite stunned for a few moments and my hands gave way and I fell clear of the whole thing on the floor; I was burned on the back of the hand; it was entirely a surface burning. It destroyed the skin on the back of my hand. Now, will you please assume for a moment those facts to be true—this statement to be true—and will you give me an explanation in your opinion as to what amount of the shock he received in that case?

3442 A. I guess he got a pretty good shock.

Q. What was the method in which he received the shock?

A. He got a very slight contact with points of different potentials on the conductors from that machine. If his hands were burned he made a short-time contact—brushing conduct; it was undoubtedly a very light contact.

Q. What do you mean by a brushing contact?

A. A contact of light pressure.

Q. In your practical experience of the use of dynamos and the operation of dynamos, have you observed as to the effect of light and heavy pressure? 3443

A. Yes, sir.

Q. Upon conductors?

A. Yes, sir.

Q. Will you describe it; give us an illustration?

A. The amount of shock that a man receives from coming in contact with conductors of different potentials varies very considerable with the character of the 3444 contact. You may say it is dependent upon the nature of the contact. A man may take a dynamo of given electro-motive force, for instance a one-hundred volt machine, and by placing his hands on the terminals of the machine he gets a shock, receives a shock that may be agreeable or disagreeable to the person; he receives a shock; now, then, if this person were to take two pieces of metal, one in either hand, grasping them firmly and place one piece of metal in one hand on one conductor and then touch the other conductor 3445 with a piece of metal in his other hand, he would get a shock of an entirely different nature, one which would cause him to recoil considerably and might cause him to be thrown down. I have seen an experiment of that kind tried; I tried it on a workman on one occasion; I gave him two wrenches; I didn't realize at the time I asked him to do it what the result might be, and this machine was—it was what is commonly known as a one-hundred volt machine and 3446 he was—his muscular contraction was so violent that he was thrown, if you please, his body recoiled until he came in contact with some other dynamos about five feet away. A person may take a contact from a machine running five or six or seven hundred volts, if he will take a slight brushing contact—a very slight contact with the skin under ordinary conditions—but if the contact is made tolerably good by the use of metal or any other good conductor the character of

3447 the contact will be entirely different. I had a man recently, to illustrate that, who was working in at the West End Street Railway, of Boston, on a circuit which at that time was supposed to have five hundred and twenty-five volts; I looked at the voltmeter within two or three minutes after he got the shock and it was registering 523 or 524 volts—thereabouts. This man was working on top of a wagon and was making a splice of wire when the machine—the splicing machine, or vice, or clamp, if you please—which was holding 3448 this wire, slipped and his hand was cut, quite a deep gash, I judge a quarter of inch in depth and about two inches long; the flesh was completely black; it was charged so much that it was hard on the surface and the man was thrown down into the wagon. Well, he was very much frightened, as were also the other workmen about him, and, in a jocular way, to prove to him that he didn't get as much shock as he thought he did, I touched the wires with the ends of my fingers 3449 myself and could stand it. It shows the difference in contact entirely.

By Mr. Cockran:

Q. He took a very good contact?

A. He took a very good flesh contact, with one hand.

By Mr. Poste:

3450 Q. What would you say as to the difference in contact between the palm of the hand and the back of the hand, the likelihood of getting a good contact?

A. The likelihood is that a man in ordinary everyday pursuits, or the facts are that a man can take more shock—a workman, for instance—who has the palm of his hand slightly calloused, than he can with his wrist or even the back of his hand—a person gets more shock.

By Mr. Cockran: 3451

Q. You say the back of the hand will give a man a bigger shock?

A. Under ordinary circumstances—take a workman.

By the Referee:

Q. His skin is thinner, isn't that so?

A. I do not know whether the skin is thinner or not. I take it for granted. 3452

Q. In your answer you take it for granted?

A. I take it for granted that the skin is of a different nature, and I presume that it is thicker in the case of the palm of the hand than in the case of the back of the hand.

By Mr. Poste:

Q. There is another statement, if you please, which has been testified to: Alternating current machines in 3453 Pittsburgh, in the Allegheny Lighting Company. It was a machine known, as testified to by T. Carpenter Smith, as a 2,500-light machine, at that time, but what is now the old No. 3 machine. We had a couple of switches right at the machine itself, and the men had been working there, and one of the men told me that he thought one of these switches was going to burn out; it was getting hot when he put his hand on it. I went up to examine them, and, being a tall man. I was 3454 stooping down and caught hold of the switch and I was working it gently when one of the men came up to me and made an inquiry about a tool he wanted. I stood up, and in standing up I brought the back of my hand against the metal of the switch, but that being only one, and the ground being dry, I did not feel it very much, and I went to point out to him where the tool was and I laid my hand upon this wire and the back of my hand came up against the other switch on

3455 the other side of the machine. It threw me forward four or five feet on my face, just as if I had been struck a terrible blow. I did not know what had happened to me for a few seconds. Now, upon that statement, what would you say probably took place? He further testifies—I see I have not given the whole of it: "I kept hold of the switch that I had hold of when I fell forward, and jerked it open. I do not know exactly, but I stood up to answer him, and in standing up, the 3456 switch being low down, I brought the whole of the front of my hand against the metal of the switch. I had hold of the wooden handle of it, but as I stood up I came in contact with the metal. I turned around to point out where it was, and in turning around—he was standing close to me—and I had to bring my arm behind him to show where it was. He turned and knocked my arm, and it came in contact with the switch on the opposite side of the machine, and I was thrown forward on my face. Those switches were on 3457 one side of the machine and in front of it. I got a burn on the back of the right hand that took the hair off, and just left the mark—the red mark of the shape of the metal of that switch. Now, would you say that that was a brushing contact?

A. Yes, sir: I should say that was a very light contact with two wires of different potentials—switches.

Q. In that case, does the law to which you have already referred to of the relative conductivity of the 3458 circuit in the human body enter in?

A. Yes, sir: resistance.

Q. Go on and finish your answer?

A. Resistance of the body and of the contacts of the artificial path, if you please, which is created by the man's resistance, enters into the question very considerably.

Q. The same witness, T. Carpenter Smith, testifies as to an accident to a fellow workman which he witnessed. We had a copper bar about half an inch in diameter running across the board—the switch-board. 3459 We had little clips that we were clamping with screws on there, and the bar stood up from the board a little distance and he got his hand behind those bars and as he held the clip steady while he was screwing this—putting screws into it—he had his hand up behind the two bars. There were two bars, about ten inches apart. While he was working there the screw-driver slipped, and he pitched over and brought his hand against the lower bar and touched his hand on 3460 it and hung there for a second or two. I was working six feet away and I heard him give a cry, and I knew he had got a shock. I got hold of him and pulled him off; he was knocked out; his eyes were turned up so that there was nothing but the whites showing, and as I got to him I laid him on the ground and caught him by the elbows. He had his hand up behind the lower bar and was holding the clip against the upper bar, both of these being charged, one with the positive pole of the machine and the other with the negative; 3461 he was holding the clip against the upper bar and forcing the screws into it with the screw-driver in his hand. The two pieces of clip were held together by two ordinary binding screws. He was tightening up those screws, and the first I knew I heard him give a gasp, and I jerked around from behind the switch-board. I was jammed in behind the board. It was pretty close to the framework there and I twisted myself around and saw him put round his other hand, his right hand, 3462 and as his hand came up against the upper bar I could not see where his left hand was; I only had his description of it, and I saw his right hand come from the bar, and as soon as he touched it I saw the flame fly from the arc and I went there and grabbed him up. When I got there he had collapsed. I could not see from where I was where his left hand was. I asked him how he could do such a thing as to get his hand there, and he then explained to me that his hand was

3463 right up near the upper bar and resting there; I saw
him put his hand to the upper bar. His explanation
of the way he came to get the shock was that he
touched both bars, and that held him so that he put
the other hand up. His left hand, the whole inside of
the palm was burned to a crisp, and he had a big hole
here (indicating) and on the other hand the fingers
and thumb—the upper part was burned to a crisp—was
white and thickened up, and blistered. What would
3464 you say as to the contact in that case?

A. It is impossible to arrive at a deduction as to
the exact character of the contact made from a statement
of the kind, but granting that the man had hold
of the two different poles immediately at the dynamo,
or near the dynamo of this 1,000-volt machine of
about 125 amperes capacity, that machine would be, I
think—why, he got a fairly good contact. It looks as if
he got a shock with his one hand. It would seem from
the testimony that he got a shock with one hand, and
3465 in trying to free himself, or in jumping, the other hand
came in contact with one of the other bars, either the
positive or negative.

Q. I call your attention to the fact of the arc that
was formed and the burning of his hand, and ask you
what those facts indicate?

A. It shows that he had a very good contact—a
very fair contact with his hands, and that the arc was
sprung between the flesh—skin—and this bare—a portion
3466 of the current passing through his body or
through his arm, or whatever the case may be. I do
not know from the testimony what the path of the current
was, but evidently from the fact that he was
pulled off the current was passing through his arm—
a portion of it.

Q. Upon the meagre description which is given
there, I ask you do you find any warrant, theoretically
speaking—upon that meagre description, for believing
that the whole of the current passed through him?

A. No, sir; I do not.

Q. Do you find a warrant for assuming that only a portion of that current passed through him? 3467

A. Yes, sir; a small portion—a small proportion.

Q. I call your attention to another statement made by Mr. Smith: I was putting in a Thomson-Houston machine at the time; it was to be coupled in with one of the circuits that already ran through the building; when I went up there and inquired which circuit it was to be coupled on they pointed out two wires which came down the wall; they were bare wires. These 3468 wires came down the wall and were joined by a piece of coupling; I climbed up on a ladder. I had a pair of pliers and a screw-driver, one in each hand, and I took the screw-driver and pulled the wire out and put myself right into the circuit; I took the coupling in hand and pulled that open, and it knocked me flying; it had a current on of about 28 lights on a 30-light machine. I took hold of the coupling with one hand and the wire with the other, and just pulled them out. I only slacked off one screw. It was one of those 3469 couplings that had two holes and two screws; I only slacked off the one screw, and pulled the wire out of that hole, so that I had hold of the coupling with one hand; it pitched me backward off the ladder and I fell in a heap on the floor; I was stupefied. These men told me they were running their full circuit, 25 lamps. I only know what I was told, that that machine was running to its full capacity. I know there were 14 lamps on it anyhow; there were 14 lamps 3470 at that time in the building that I counted, because, after that accident, and after the whole thing was over, I coupled our own machine in and went around to see how many lamps were on it. My hands were slightly burned.

Q. You did not drag the wires down with you, did you?

A. No, sir; they were fast. They were torn out of my hands by the fall.

3471 Q. Now, assuming that—following that statement of facts, is it possible, in your judgment, if the power which he has described was on those wires—the electrical energy was on those wires—is it possible that if he had taken hold of one wire with one hand and the other wire with the other hand that he could have relaxed his hold?

A. No, sir; he could not voluntarily.

Q. If he had taken hold of the wires in that way 3472 and had fallen from the ladder, what effect would have been produced upon his hand, or would an arc have been formed by the breaking away of his hand?

A. Fourteen lamps on a circuit would give him about 700 volts; there would have been an arc circuit of 10-ampere current; there would have been considerable current.

Q. What effect would that have upon his hands in your opinion?

A. Why, it might have burned them very con- 3473 siderably.

Q. Well, have you any other comment to make on that case, as to the probability, in your opinion, as to what degree of the current he received from the energy of the machine?

A. It is impossible to state from a case that is given as these cases have been. It is impossible first to arrive at the exact condition of affairs, and secondly, to make accurate deductions; but from the fact that the man 3474 fell and his hand showed no bad marks, it shows that either the arc was sprung at the time of breaking the wire—taking the bulk of the current through that arc—a low-resistance arc if you please—or that the screw-driver in the one hand and the pliers in the other, the arc was sprung from the point of this to the other wire, and that the small portion of this current, whatever it may have been, passed through his body.

Q. In other words, he formed what is called a shunt?

A. Yes, sir.

Q. And the main current passed through the arc, if there was an arc formed? 3475

A. Under the supposition that an arc was formed, that would have been the case; yes, sir.

Q. But as I understand you, if his hands actually had hold of those wires—one in each hand—he could not have escaped in your opinion without severe burning?

A. No, sir; if the wires had been parted in his falling; you understand.

3476

Q. Yes. The same witness, Mr. T. Carpenter Smith; I got a shock from a 30-light Thomson-Houston continuous-current machine, a 25-light machine running 30 lamps. I was in the cellar of Gusky's store in Pittsburgh. The agent of the company was with me and he complained that the regulator had not been working. The floor was wet and the wires were lying right down on the floor, ordinary underwriter's wire, and I went in with my feet wet. I stood on the floor, not noticing that I was standing right over one 3477 of these wires. It was sunk in a hole in the floor, and the floor was very dirty. I did not notice it at the time; it was lying down on the floor in a groove. The floor was full of oil and dirt and I put my foot on that. Coming in from the outside—it was then wet weather and I suppose my feet were wet—I stepped down and took hold of the bare binding post of the machine.

Q. What kind of insulation was on this negative wire?

3478

A. Underwriter's insulation. In that way I pitched right across the whole circuit of 29 lamps, which were burning. The shock was enough to draw me up. I could not let go. I felt it was going up to my head and I shouted to him to let it down. Instead of letting it down he was standing by the main circuit switch, and he pulled it open and that sent the whole current through me. I was thrown backward on my back three or four feet away. I was burned on the feet. I

3479 kept hold of the machine, but wherever there were nails in my shoes I had little nail prints on my feet. On the sides of the feet there were marks about the size of pin holes burned through the thick skin on the sole of the foot. My hand was not burned.

Q. Please state in the first case what effect the conditions as described had upon the resistance offered by the man to that current?

A. His body was the shunt around the lamps—the 29
3480 lamps, or whatever there may have been—and the amount of current passing through him depended entirely upon the resistance of the contact between his hand and the binding post, and then the resistance of his body, and then the resistance of his boots and stockings and the contact between them and the floor and the oil and the grease, and from there through the insulation of the wire, and so on. In other words it depended entirely upon the path which he created for the flow of the current.

3481 Q. Do you find any warrant for the opinion of that statement of facts that he received a large portion of the current?

A. No; although he states that he received it all I should rather doubt it.

Mr. Poste:

Of course that is his conclusion.

3482 *Cross-examination* by Mr. Cockran:

Q. How did you come to give us the pleasure of your company here to-day?

A. I was asked to come here by the gentleman on your right.

Q. Mr. Poste?

A. Yes, sir.

Q. Who introduced you to Mr. Poste?

A. Mr. Brown.

Q. Mr. Harold P. Brown? 3483

A. Yes, sir.

Q. Himself, as it were—this gentleman (indicating).

A. Yes, sir.

Q. Where did Mr. Brown find you?

A. He found me in the elevator of the building, No. 44 Wall Street.

Q. Have you enjoyed a long acquaintance with Mr. Brown?

A. I have known him several months. 3484

Q. Several months—well, since when?

A. I do not remember; I think I have known Mr. Brown in the neighborhood of one year. I met him in New York first, but I do not really remember the date or the month, but I should say it was about that time.

Q. Do you remember the circumstances under which you met him?

A. I was introduced to him first, I think, by a gentleman in the Adams House, Boston, one evening, if I am not mistaken. I think that is where I first met 3485 him.

Q. And he has improved your acquaintance since, has he?

A. I do not know whether you call it improving it or not.

Q. He has increased it; he has kept it up: that is a common conventional term?

A. I have kept it up, perhaps, quite as much as he has. 3486

Q. He has kept it up, hasn't he—between you it has been kept up?

A. He is where I can find him occasionally.

Q. Have you had any business relations with him?

A. No, sir.

Q. Will you tell us how Mr. Brown came to ask you to testify here?

A. I do not know, sir; he met me accidentally in the elevator this morning; and he asked me, he says:

3487 "By the way there is a hearing on here in the city regarding this case of some man whom they are trying to execute," and he said, "Would you be willing to give any testimony in the case?" "Well," I said, "if you think I can do the cause any good, I think I would."

Q. The cause? You regard it as a cause. Which cause do you mean?

A. The cause of the general enlightenment of the public.

3488 Q. That was the cause. You felt that if you could do the "general enlightenment of the public" any good, you would be willing to testify; or was it the cause that Mr. Brown had espoused?

A. The general enlightenment of the public I had in mind.

Q. You were a philanthropist?

A. To a certain extent.

Q. Moved completely in that direction, and no other motive?

3489 A. No, sir.

Q. Did you look over those questions that were put to you?

A. No more than a slight friendship that I felt for Mr. Brown, and the fact that he asked me.

Q. In other words, you have come here as a favor to Mr. Brown; that is the amount of it, isn't it, Mr. McQuesten?

A. That has something to do with it.

3490 Q. That is really the main reason, isn't it?

A. No, sir; I do not think it is the main reason.

Q. It never occurred to you to come here until he asked you?

A. No, sir; it wouldn't occur to me until after I was invited.

Q. And you came upon his invitation somewhat through your friendship for him?

A. I came upon his invitation through my friendship for him.

Q. Now in this testimony that you have given, Mr. McQuesten, do you claim to speak of this as positive knowledge, or simply conclusions or opinions which you have given? 3491

A. Opinions.

Q. Simply opinions?

A. Yes, sir.

Q. You are a contractor, I understand?

A. Yes, sir.

Q. That is, you supply electric-light plants; is that it? 3492

A. Yes, sir.

Q. You do not claim to be an electrical engineer in the sense of a general expert in electricity, do you?

A. No, sir.

Q. Mr. McQuesten, there is one thing that I have noticed through all your answers; you have said, "Assuming the ordinary conditions," in each answer that you gave?

A. Yes, sir. 3493

Q. Now, would you be kind enough to explain to me what you mean by that?

A. In the first case, an arc-light wire was spoken of—an arc conductor was spoken of, and a telegraph wire was spoken of. I take it for granted that these wires were hanging over the ordinary street, paved or unpaved, and that the wire was grounded merely by its own weight in falling across the other wire, and that it was grounded in the vicinity of the point of contact above, and that the dog was an ordinary dog. 3494

Q. An ordinary dog—well, he was an extraordinary dog in some respects; he was very handsome; would that make any difference in your conclusions?

A. No, sir; I think not.

Q. Now, when you speak of ordinary conditions, don't you include also the usual manifestations, as apart from some eccentric manifestations that you have observed?

3495 A. Yes, sir.

Q. You have sometimes seen electrical manifestations that you couldn't understand—that were peculiar and extraordinary?

A. In the case of lightning, I have; yes, sir.

Q. No, I mean in the case of ordinary electricity generating by artificial means. You have seen it more powerful in its influences on some men than on others?

3496 A. Yes, sir, but I understood that.

Q. You have noticed that, haven't you?

A. Yes, sir.

Q. Now you understand it, you say?

A. Yes, sir.

Q. Are you sure that you understand it, or do you believe that you understand it?

A. I believe that I understand the effect.

Q. I know; but the cause I mean?

A. Yes, sir.

3497 Q. You believe that.

A. I believe that I understood it.

Q. That is, you had a theory about it?

A. Yes, sir.

Q. When we are dealing with electricity we have a great many theories, haven't we?

A. Different men have different theories.

Q. Exactly. Now, in speaking of the evidences of a burn, I understood you to say that they indicated that
3498 an arc had been formed where the hand had been burned by contact with electrical wires?

A. Yes, sir.

Q. Where a man grasps—gets hold of an electric wire, and then shows a burn, isn't it your opinion that the burn is created about the time that he is beginning to let go?

A. Yes, sir.

Q. And not when he has a good hold on it?

A. Yes, sir; it is not when he has a good hold on it.

Q. When he has got a good hold and catches it by the hand you do not think there is any burn? 3499

A. No, sir.

Q. And the burns that you observe when a person is taken down occur about the time that he is letting go?

A. Yes, sir.

Mr. Cockran:

That is right; I haven't another question to ask you. 3500

(At this point Mr. Harold P. Brown produced a diagram, which he had been requested to make, showing the appliances which were to be used in this case.)

Mr. Cockran:

I was under the impression that you proposed to put Mr. Brown on the stand?

Mr. Poste:

3501 I don't think that I care to put Mr. Brown on the stand again. You can cross-examine him if you like, Mr. Cockran.

Mr. Cockran:

I thought you wanted to prove by him these experiments with Mr. Kennelly?

Mr. Poste:

No. 3502

The Referee:

Perhaps Mr. Brown had better take the stand.

HAROLD P. BROWN, recalled.

By the Referee:

Q. You were asked the other day to make a diagram of this proposed machinery that is to be erected

3503 at Auburn, and you agreed to do so; have you done so?

A. I have had it done; yes, sir; under my direction.

Q. Do you know that it is correct, so that you can understand it?

A. Yes, sir.

By Mr. Cockran:

3504 Q. Mr. Brown, what are the component parts of the application to the gentleman's head?

A. That knob on the center of the head is supposed to represent a brass post which is a cylinder two inches long and one inch in diameter, having at the top a hole bored with a thread, so that the wire can be screwed into it. At the bottom of the post is a plate about one-sixteenth of an inch thick, having—

Q. At the bottom of which post?

A. The bottom of this post forming the top of the 3505 electrode.

Q. You mean the thing which looks like a cap?

A. No; I haven't got to the cap yet.

The Referee:

It is a projection from the cap.

Q. Do you mean the top of the cap?

A. Yes; I mean the top of the brass is one-six-3506 teenth of an inch thick, and is a disc two inches in diameter. Above the disc, and projecting or rather inserted into the piece is a number nine copper wire which is bent in the form of a glass spiral, in a plane at right angles to the plane of the cylinder, making a flexible conductor five inches in diameter which may be adjusted to any form of contour of head. The method of fastening that in place and of placing upon it a sponge or absorbent cotton is not to be done by me. That is, I understand, to be under the charge of some

of the State physicians, and my recommendation was 3507
that they should interpose say half an inch of absorbent cotton, or folds of linen, to prevent actual contact between the skin and the metal, and that they should be as shown in the dotted lines here.

By the Referee:

Q. On the top of the head?

A. On top of the head. A piece of dentist's rubber brought right around the head up to the top, 3508
and held with a clip, so that there would be a receptacle there for a pint or more of solution. I will also here state for the benefit of counsel on both sides that the idea of attaching the electrode to the head is not my idea. I should feel, if I—

By Mr. Cockran:

Q. Whose is it? Let us have the author of it, so that we can give him the credit?

A. I think that Dr. Rockwell was the one who suggested it. 3509

Q. The gentleman who testified?

A. The gentleman who testified.

Q. Go on.

A. My idea, if you care to have it—

The Referee:

You were simply asked to identify the diagram.

3510

The Witness:

Oh, yes.

The Referee:

You are entering on fields and pastures new, where we might keep on grazing forever.

Q. I was willing to give you credit for the whole of it?

3511 A. The field shown on the left represents the Westinghouse alternating current dynamo. The machine connected to it, and shown about the centre of the drawing, represents the continuous current dynamo, which is used to charge the fields of the Westinghouse current machine. The lines connecting the two machines show the circuit leading from the continuous current machine to the field magnet of the alternating current machine. The lines leading from the
3512 large machine up on the left of the paper represent the main circuit of the alternating current.

Q. What is at his feet?

A. I will get to that presently.

Q. Oh, you will come back?

A. At the top of the centre of the drawing next to these lines is shown an instrument which represents a Cardew voltmeter. There are also to be shown, in series with that instrument, some resistance coils to enable the Cardew voltmeter, which ordinarily reads
3513 to but 120 volts, to be used up to a pressure of 2,000 volts. That is not shown, but it would simply be—it can be added there if desired.

Q. I think you had better put it in, and let us have the full thing complete?

A. I will do so. The Cardew voltmeter is connected in parallel across to the two main wires carrying the alternating wires. The upper wire leads to an instrument shown at the top of the centre of the draw-
3514 ing, which represents an ammeter which has been built and collaborated for use on an alternating current having 290 to 300 alternations per second. A wire from the meter leads to a switch giving a double break, so as to—this wire leads from the switch to a connection which is supposed to be a flexible cord leading to the head of the criminal. There is from the lower wires shown on the top of the left of the drawing a connection to a second switch, so that the circuit may be opened on both sides, and thus obviate any

risk on the part of the attendants from ground shocks 3515
from this dynamo. The second switch, which is shown below the ammeter, has a wire leading to a point where it branches into, or may branch into, two flexible connections, if necessary, one to be brought to each of the feet of the criminal. The foot electrode is a plate of metal about an eighth of an inch thick and about fourteen inches long and two inches wide. It has at one end an oblong piece of brass one inch by one inch by two inches, in which is bored a hole with a thread 3516
so that the connection may be screwed into it.

By the Referee:

Q. The connection with the wire?

A. The connection with the wire. The contact between these plates and the feet or the foot of the criminal is to be made through an interposed absorbent substance, and through a large amount of liquid electrode.

3517

By Mr. Cockran:

Q. What kind of an electrode is liquid electrode; what do you mean?

A. Well, some liquid conductor.

Q. You have not decided that yet?

A. That decision is not left to me. I suppose the physicians in charge will have that to decide. A box is shown on the lower right hand corner of the drawing, which represents the Wheatstone bridge with its 3518
galvanometer and resistance coils and battery and a couple of wires leading out from it which can be applied to the subject in order to obtain his resistance before the current from the dynamo is turned on.

By the Referee:

Q. This band around him, what is that?

A. That band and the chair is not apparatus that I supply.

3519 By Mr. Cockran:

Q. Then in that apparatus would there be anything to prevent the subject from moving around?

A. That is not under my charge.

Q. Answer my question. From that diagram, as that shows it, is there anything to prevent him moving his head?

A. There is nothing to prevent motion of the head, but there is a flexible cord which will allow motion of
3520 the head.

Q. What is that?

A. There is a flexible cord which will allow a motion of the head. The details and fastenings are something that I have nothing to do with.

Q. Are you able to testify now how, in that machine, a man is going to be held?

A. Yes.

Q. So that he cannot move?

3521 A. There is a heavy strap shown passing around the man's chest, which is fastened—the fastenings are not shown, as the arms hide them.

Q. We will suppose he is fastened to the chair?

A. Fastened firmly to the chair. The legs also are fastened firmly to the foot rest.

Q. Is there anything to prevent a motion of his head; like that (indicating).

A. There is nothing here shown.

Q. Pardon me. Suppose he moved his head like
3522 that (indicating), wouldn't that take him out of the current?

A. No, the conductor is a flexible conductor; so that he may make motions.

Q. So that if he wriggled around it would not make any difference?

A. So far as his getting out of the current is concerned; no.

Q. Is there anything there of a character of the

electrode described by Mr. Edison—a liquid electrode 3523
to be put around his head?

A. There are means shown by dotted lines, representing the rubber bag or sack, which may contain a liquid electrode.

Q. Well, would that be all around his head?

A. No, only the part of the head covered with hair —simply the scalp.

Q. That would be a liquid electrode. How much liquid could you get in there? 3524

A. You could arrange it so as to get any amount desired.

Q. Well, how much have you on that drawing?

A. On this drawing, I should say it would hold at least a quart.

Q. A quart?

A. That is simply approximately.

Q. Approximately?

A. Yes.

Q. Now, Mr. Brown, would you permit me to suggest that you ought to have that diagram supplied with a kind of key, so that we will have it capable of easy reference? 3525

A. Certainly.

(It is consented that the witness be allowed to mark the respective parts of the diagram with figures or letters, with key attached, and that he send it to the Referee.) 3526

The Witness:

And you also requested that the resistance box should be added.

The Referee:

And also marks to show the resistance box?

3527 The Witness:

A. Yes, sir.

Q. Mr. Brown, you have been here every day since your examination?

A. Yes, sir.

Q. And you have helped Mr. Poste with suggestions and papers all through this examination?

A. Yes, sir; I have been doing my best to assist Mr. Poste.

3528

Mr. Cockran:

I congratulate you.

Mr. Poste:

He did so at my request, and I am very grateful to him.

By Mr. Poste:

3529 Q. That is simply your suggestion as to the method that should be followed?

A. Yes, sir.

Q. Is that a fact—as a matter of fact, has the State accepted the dynamos and instruments?

A. No.

Mr. Cockran:

What is that?

3530

Mr. Poste:

I said as a matter of fact the State has not accepted the dynamos and instruments. They have been shipped and delivered, but not taken.

Mr. Cockran:

Q. Haven't they been shipped and delivered in that way?

The Referee: 3531

Q. They have been shipped and delivered.

By the Referee:

Q. You made a contract with the State as to certain things—with the State through Austin P. Lathrop, Superintendent of State Prisons?

A. Austin Lathrop, I think it is.

Q. And under that contract you have fulfilled what the contract called for? 3532

A. What?

Q. You sent the State authorities what the contract called for?

A. Yes, sir.

By Mr. Cockran:

Q. They never have sent them back to you?

A. They never have.

Q. They have accepted them, so far as taking them is concerned—they have kept them? 3533

A. I understand they have kept them.

Q. Is that chair insulated from the ground?

A. It is shown upon a raised platform of hard wood.

Q. Well, is it insulated?

A. It is so shown.

Q. Can't you answer the question? On that drawing does it appear to be insulated? 3534

A. It being of hard wood, it would be its own insulation.

Q. Then your answer simply is that the chair itself is of hard wood?

A. Yes, sir.

Q. And that is an insulation?

A. That is an insulation as long as it is dry.

Q. Perfectly insulated?

A. Well, approximately.

3535 Q. Approximately is not perfect. It is too wide a region for speculation?

A. I should say its insulated resistance would measure up to about a meg ohm, and that is considered in electric lighting a fairly high resistance—a fairly good resistance.

Q. Its insulation is equal to a meg ohm?

A. Yes, sir.

Q. Would you mind telling us what a meg ohm is?

3536 A. A million ohms.

Q. Could you measure that with the Wheatstone bridge.?

A. Yes, sir.

Q. You can measure a million ohms with a Wheatstone bridge?

A. Yes, sir.

Q. Did you ever know of a box of resistance coils that had the resistance of a million ohms?

A. No, but we have multiplying coils, so that we
3537 can multiply what resistance we have by ten or by 100.

Q. And it is with the multiplication box, as it were, that you managed to get that measurement?

A. Yes. If necessary, a coil having a million ohms could easily be made.

Q. It could?

A. Yes, sir.

3538 Mr. Poste:

I have no more evidence now—no more evidence in my mind—on the subject of the resistance of the human body.

Mr. Cockran:

There is no intention of producing any further evidence of experiments made by Mr. Edison?

Mr. Poste:

No, because I don't understand that he made any.

Mr. Cockran: 3539

He promised to make them.

Mr. Poste:

What experiments are you referring to?

Mr. Cockran:

Measurements.

Mr. Poste: 3540

He has given those.

Mr. Cockran:

You mean Mr. Lehmann's experiments made somewhere else, but Mr. Edison, when on the stand, stated that he was going to make some further experiments the next day.

Mr. Poste: 3541

Mr. Lehmann made some experiments which are in evidence.

Mr. Cockran:

It isn't pretended that they were made under his supervision, nor is there any statement here that those are vouched for by Mr. Edison, as I understand it.

LANDON CARTER GRAY, recalled. 3542

Examined by Mr. Cockran:

Q. Doctor, we have had a large amount of testimony here about the resistance of the human body, based upon experiments made within the last two or three days. I want to ask you if this question of the resistance of the human body has been the subject of extensive scientific research long before this?

3543 A. Yes, sir; it has.

Q. Has that matter been inquired into by any physiologist?

A. Yes, sir.

Q. May I ask his name?

A. There has been the most conclusive researches by a German doctor, Frederick Jolly, whose book I hold in my hand.

Q. He is a world renowned authority, is he not?

3544 A. Yes, sir; he is considered "the" authority on the resistance of the human body, and since his book was published, in 1884, it has been considered as conclusive, and I know of no other experiments that have been undertaken by any medical men.

Q. Under the researches of Dr. Jolly has the resistance of the human body ever been definitely ascertained?

A. No, sir; it cannot be definitely ascertained—that is the very point—that is the main point to which
3545 he has come by reason of his experiments, that it varies so enormously that practically it cannot be determined from one case to another.

Q. Well, now, can you explain to me what his experiments were?

A. His experiments were made on ten males and ten females, and he found some very curious things. In the first place he found, contrary to what had hitherto been supposed, that the resistance of the skin of
3546 the hand and the resistance of the sole of the feet was less than that of any other portion of the body; now, theretofore that had been supposed to be precisely the contrary.

Q. We have had some testimony here that the palm of the hand was a point of very high resistance?

A. That is the old opinion; it has been entirely upset by these experiments of Dr. Jolly.

Q. Now, just state what the results of his experiments were?

A. His experiments were to determine that the resistance of the skin of the sole of the feet and of the palm of the hand was less than that of any other portion of the body, and he was not able to give any adequate explanation of the fact. He had simply to take the fact for what it was worth. 3547

Q. Did he find that in every instance with which he had experimented?

A. Yes, sir; he found that in some twenty cases with which he carefully experimented.

3548

Q. If you were given the resistance of the human body through the hands, would it give you any indications of the actual resistance of the human body?

A. No, sir; that would give me the lowest resistance of the whole human body, and that resistance of the hands indeed was—did not differ very greatly comparatively from—that which Mr. Edison obtained, or at least that which was detailed in these experiments to-day by his assistant, Mr. Lehmann, I believe. Although I might say here that these measurements 3549 of the resistance of the hands and the soles of the feet, as given by this assistant to Mr. Edison, are the lowest that have ever been given by any scientific authority.

Mr. Poste:

He has not given the soles of the feet.

The Witness:

Didn't he include the sole of the foot? 3550

Q. No, he simply took the hands; these are the lowest that have ever been given by any scientific authority?

A. Those are the lowest that have ever been given by any scientific authority.

Q. Now, can you give us any explanation of that?

A. Of what, sir?

Q. Of the lowness which these show?

3551 A. Well, I do not know whether he used the same fluids in which to immerse the hands that the other authorities did or not.

Q. What fluids did Dr. Jolly use?

A. Sulphate of zinc solution.

Q. And by that means he took these resistances?

A. And he used electrodes of a certain design, two square centimeters in diameter, and fixed upon the hands or fixed upon the skin that he wanted to measure.

3552 Q. Suppose you take 250 persons, and you subject each of them to a measuring process: they will all show the same result, won't they?

A. They will all show the same result, of course.

Q. Will that result be any indication of accuracy at all?

A. No, sir.

Q. How will it vary?

A. Enormously from person to person. As I stated

3553 in my direct testimony, it will vary according to the seasons of the year, and not only that, it might vary—there is some reason to suppose that it will vary—with different diseases.

Q. The temperature is an important element, isn't it?

A. The temperature is a matter of considerable significance.

Q. Now, would any ascertainment of resistance be

3554 of any value without taking the temperature of the subject?

A. Well, I cannot say, because no investigations have been conducted precise enough to enable me to answer the question.

Q. So that if I should take 500 persons and put them all through a process of measurement, I would get the same result?

A. Yes, sir.

Q. And would you regard those results in the light of scientific investigations that have been made as of any value? 3555

A. I should not, unless—that is a pretty broad question. Of course, I might regard them as of scientific value, as Jolly's experiments were, showing variations in different people.

Q. And in that respect it is showing how unreliable it is?

A. Yes.

Q. Now, this paper which Mr. Lehmann presented 3556 to-day—"People's Exhibit C"—I show this "Exhibit C." Have you got any criticism to make of that as far as results are concerned? (Handing paper to witness.) You have heard Mr. Lehmann's testimony, doctor; haven't you?

A. Yes, sir. Well, all the criticism I have to make on this is, that these are the lowest resistances that have ever been determined by any scientific man that I know of, and that the variation between different persons is less than has ever been stated by anybody 3557 before. Now, I should like to—I won't read them, but I should like to have this copied and put in evidence here: it is a table of this Dr. Jolly's, showing the different results obtained by different observers in measuring precisely the same points of the skin.

Mr. Poste:

Let me see the table.

3558

(The paper is handed to Mr. Poste.)

The Witness:

There is the German table, and then I should like to show the resistance in different persons at the same points of the skin as claimed by the same men.

Q. Suppose you just spread that out on the record, doctor?

A. It is a long statement; that would take a long time.

3559 Q. Would you mind making a statement of it?

A. The simple statement is that the variations are enormous.

Mr. Poste:

We have no objection to his stating it.

Mr. Cockran:

I do not think you can use the time better, doctor.
3560 How long would it take you to give that?

A. That would take me ten minutes to give that—five minutes at least.

Q. Go on and give it.

A. There are experiments made in the first place by a man named Drosdorf, and then by Prof. Erbe, who is a great authority in Germany, in Heidelberg, and then by two gentlemen together, named Tschirjew and der Wattville, and finally the researches made by
3561 Jolly himself. Now, I think, Mr. Cockran, these are very complicated, and I will surely confuse the stenographers; I had better have them copied off and put in evidence; there is a long list of figures.

Mr. Poste:

You can have them copied and sent here.

The Witness:

3562 Yes, because they are very complicated.

Q. Will you put it in a duplicate form?

A. I will, sir.

Q. Doctor, we have had Mr. Edison here, and Mr. Kennelly, and Doctor Edson and Mr. Brown, who have testified to some experiments on dogs, and Mr. Edison testified that from those experiments he reached certain conclusions as to the effect of electricity upon human beings. Now, I want to ask you, is that a novel experiment—that experiment with dogs?

A. No, sir. 3563

Q. Has that ever been attempted by any recognized physiologist?

A. Yes, sir.

Q. A pathologist?

A. Yes, sir.

Q. And have the results been ascertained.

A. What do you mean? Have they given the results?

Q. Have the results of these experiments been given to the world? 3564

A. They have given certain results—yes.

Q. Has the alternating current ever been used—ever been tested—do you know?

A. I believe so.

Q. By whom.

A. By a Frenchman named D'Arsonval.

Q. Who is D'Arsonval?

A. He is a Frenchman of some distinction as a physiologist. 3565

Q. What were his experiments?

A. In what way do you mean?

Q. On the dogs? What did he do with the dogs?

A. They were simply to kill dogs by an electrical current.

Q. What results did he reach from that—from his investigations?

A. He found that he could kill dogs, apparently, as I have already stated, and then bring them to life by artificial respiration. 3566

Q. That is, they gave no sign of life?

A. So he states.

Q. And Doctor Edson testified here that in some cases—I believe he only saw three dogs experimented upon—that after dissection he found nothing unusual in the body. All the organs were normal. Now, would that indicate to you that the animal was dead?

A. Oh no; because a man or dog might die, and

3567 still nothing be visible to the naked eye afterward. Many kinds of the insane die, for instance, and nothing is seen with the naked eye to show from what death has occurred.

Q. Would the fact that the dog who was perfectly healthy—upon being subjected to this shock, and dissected and examined and nothing abnormal being found in any of his organs—would that give you any doubts that he was dead before he was dissected?

3568 A. In view of these experiments of this Frenchman, D'Arsonval, I should certainly want to try artificial respiration and give the brute the benefit of the doubt?

Q. Do you think it is a safe conclusion after an electrical shock of that character—because there is no sign of life visible—to conclude that the dog is dead?

A. No, sir; I do not.

Q. And if on dissection you find the auricle of the heart beating, what conclusion would you arrive at?

3569 A. Then I should want to try respiration, certainly.

Q. Before you attempted to dissect?

A. Yes, sir.

Q. Now, doctor, where death is caused by any violence to the system, upon a post-mortem examination you can discover the cause; cannot you?

A. Usually.

Q. You can see some organ disturbed?

A. Usually; not always, however.

3570 Q. Well, with very rare exceptions?

A. Well, there are exceptions.

Q. Yes, there are exceptions to almost every rule of medicine?

A. Yes.

Q. And where, for instance, a man is killed by shock, oftentimes you can discover no sign of what particular thing disturbed him, can you?

A. Well, death by shock can occur without any sign being visible to the naked eye afterward.

Q. Well, now, can any physician describe what a shock is? 3571

A. Only periphristically.

Q. Shock is something which you do not exactly understand?

A. Shock is something which they understand, but it is hard to describe it?

Q. That is what I mean; it is hard to define?

A. Yes.

Q. How would you ascertain whether a man died from shock? 3572

A. See whether he was dead.

Q. First? And how would you decide that shock was the cause?

A. A history of the case would decide the cause.

Q. It would not be any symptom that you would see?

A. Yes; cessation of the beating of the heart, slow respiration, perhaps vomiting and color of the skin, and the heat of the skin. 3573

Q. Would those be symptoms that would be observed after death?

A. Those would be symptoms that would be caused by shock, and of course continued after death.

Q. My idea is—what I want to find out is this, doctor: Where shock intervenes there is no fixed rule that can be applied to every person—I mean that some persons would die from shock where others would not?

A. Yes, I see what you mean. Yes, the susceptibility of different persons to shock varies enormously. 3574 For instance, a little clot may be effused into one man's brain no bigger than a pea and cause instantaneous unconsciousness; and another man might have a clot as big as your fist, and be paralyzed in only one side of his body, and yet walk home.

Q. Now, Mr. Gibbons used an expression here in his testimony which I will roughly state to you. He stated that this susceptibility to electricity—and I as-

3575 sume that he meant susceptibility to shock—was as various in some men as the degree of timidity which some men would develop?

A. That is a very good comparison.

Q. He said one man would be almost frightened to death if he met a burglar in the house at night, while another man would walk up and seize him. Is that a good comparison?

A. I think it is a good comparison.

3576 Q. Does that hold good also as to the susceptibility of man to electricity?

A. I think so.

Q. It is equally so, isn't it, that one man would receive a blow which would prove fatal, and twenty other men receive it and it not hurt them at all?

A. Certainly; most men that received the blows that John L. Sullivan hit Kilrain would have been unconscious, or even nauseated—very sick.

Q. I should think so, doctor.

3577 A. Yes, that is a matter that we are all experts on.

Q. So that you, having studied this subject of electricity, I understand you to say that you are prepared to swear that the susceptibility of man to electricity varies enormously?

A. I say so; yes.

Q. Just as it does in the case of shock?

A. Yes.

3578 *Cross-examination* by Mr. Poste:

Q. Doctor, do you know in these experiments of Dr. Jolly whether—what record is contained as to the condition of the hands before the experiment?

A. Dr. Jolly?

Q. Yes.

A. The hands were put into a solution; the electrodes were moistened with a solution of sulphate of zinc, and therefore the hands were reduced to the same condition by that solution; and the diameter of the 3579 electrode is given as two square centimeters.

Q. What is your opinion on this? The condition of the hands as to perspiration, oiliness, dirt—do those elements enter in to complicate the problem at all?

A. Certainly; anything that would alter the resistance in making it less, or making it greater, would alter the problem.

Q. What would you say to the relative effectiveness and efficiency of zinc sulphate and caustic potash in 3580 reducing the hands to a condition to present the least resistance from external causes or causes external to the hands.

A. I do not know the relative resistance of those two substances. I am not prepared to state. I really do not know which would reduce the resistance the most.

By the Referee:

Q. Do you know whether the caustic solution of 3581 potash would tend to saponify the oils in the hands, and reduce them to that condition?

A. Certainly.

Q. While zinc sulphate might not do it?

A. I do not suppose zinc sulphate would do that to a certain extent.

Q. You know that the caustic would, don't you?

A. I think it would do it; at least Mr. Edison states so, and I see no reason to doubt his statement; 3582 in fact, I know it would. I do not know whether it would with zinc or not.

By Mr. Poste:

Q. DeWattville has written on the subject, has he not?

A. Yes, sir.

Q. Do you remember what his ascertainment of the average resistance is?

3583 A. Well, I looked through DeWattville, and I am not sure that I looked thoroughly, but the only reference that I could find was the statement of an electrical equation, which he prefaced by saying: "Assuming that the resistance of the human body is 2,500 ohms." That is the only statement that I could find in DeWattville regarding the resistance. Here are his statements, however, which I propose to give you in this book of Jolly's, showing the enormous variation 3584 between his and other gentlemen's.

Q. What is the name of D'Arsonval's book?

A. He wrote no book; he made a communication to the Societe de Biologie.

Q. It is the same communication that you mentioned in your previous testimony?

A. Yes, sir.

Q. I understand you to say that the fact that no disturbance of the organs—I understand you to say that death results in certain cases, and leaves behind 3585 no disturbance of the organs to indicate the cause of death?

A. No; I did not say that.

Q. What did you say on that subject?

A. I said that death might be caused by disease and by various causes, and yet no alterations of the organs be visible to the naked eye, but it might be to the microscope.

Q. In what cases is that state of things found?

3586 A. Well, it would make a long catalogue of cases if I were to give you all. But, for instance, in some forms of insanity, where death occurs, there is absolutely nothing visible to the naked eye—in some forms simulating organic disease of the brain and cord.

By the Referee:

Q. Do you remember a very careful examination made upon that subject by Dr. E. M. Brush, the State Physician, and Physician of the Insane Asylum? After a long series of years of experiments he was unable to determine, in the absence of any lesion, the cause of death? 3587

A. I do not remember that particular case.

Q. You remember that Dr. Brush made investigations of that character and published them in the *State Reporter?*

A. Yes. I was going to say that there are cases of simulating organic diseases of the brain and cord in which, after death, nothing will be found visible to 3588 the naked eye. For instance, it is a form of paralysis accruing in young Tilden, paralysis in one arm or one leg, such a paralysis as the present Emperor of Germany is said to have, which is said to be a wasting or paralysis of one arm, would not indicate except after the lapse of years—would not show anything visible to the naked eye in the spinal cord; yet, under the microscope, if you knew what to look for, you would find very decided lesions, and it was not until 1873 that that was first known. So that I could cite many 3589 instances on that point.

Q. Did Brush use the microscope right along and make pathological examinations?

A. Yes, sir; I think so.

Q. And reported that he was utterly unable to determine—tell anything about it?

A. Yes; that is by no means uncommon.

By Mr. Poste: 3590

Q. Did I understand you to testify, doctor, or leave that to be inferred from your testimony, that in your opinion death from electrical currents would be analagous to death from shock?

A. Not always. This is a mixed condition. I think in some cases it might be—in a majority of cases—it might be analagous to death from shock.

Q. You think it would produce the same effect upon the circulation?

3591 A. As shock.

Q. Yes.

A. Well, I presume so. I can imagine in certain cases that it might bring about other conditions from which a man would die, as, for instance, that one case of a man who was struck by lightning; he did not die for 33 days afterward, because the stroke of lightning caused apoplexy and the bursting of a blood vessel in one side of the brain, and he remained unconscious
3592 from that for 33 days, and finally succumbed to that. So that I can imagine that electricity might cause death by inducing alterations in the blood vessels and tissues, causing apoplexy in certain cases—causing various other alterations in the vessels and blood tissues and then again, by shock direct and immediate. If the death is going to be painless at all, it must be by shock.

Q. Now, what effect do you think would be produced by a killing current of electricity upon the res-
3593 pirations?

A. Well, it would depend upon how it was applied. If it was directly applied to the respiratory centers, I think it would arrest respiration immediately—stop it.

Q. Doctor, how long can the respiration of the human body be arrested without death ensuing?

A. I don't think that has ever been accurately determined.

Q. What effect do you think would be produced by
3594 such a current upon the beating of the heart—the action of the heart?

A. I think the action of the heart would be stilled after the respiration was stopped.

Q. That would follow?

A. Yes, I think the next effect after the cessation of the respiration would be the stilling of the heart.

Q. Now, you have stated that you think—that it is your opinion that there is a difference of susceptibility to electrical influences on different people. Won't you tell us what you have observed directly on that 3595 point; if you have observed anything?

A I have observed that some people cannot stand a current of electricity as well as other people.

Q. Isn't it simply because they cannot stand the pain?

A. I beg pardon, sir.

Q. Isn't it because they do not want to stand the pain?

A. Oh, sir; there is no pain about it as I administer it—as we administer it in medical practice. There is no pain; we are careful to avoid that. 3596

Q. Well, wherein is the extreme susceptibility manifested?

A. The unpleasantness depends on the way you give it. When I apply it to the brain I generally put one electrode to the back of the neck and one through here (indicating forehead). Now, in some cases, it will produce a great deal of dizziness and nausea will last for some time afterward. In some susceptible individuals it will produce a headache, lasting for some time, and then again others will come along who take a great deal more current, in whom none of its effects will be observed. So much so is that the case that in any new patient that comes to me I am very careful to test his or her susceptibility to the current, and in some susceptible cases I find that after they have been taking it for a week I can give three or four times as much current as I could at the start. Now, in applying it to the spinal cord, it will produce the same unpleasant feeling to a certain degree. 3597 3598

Q. In connection with this subject, on the previous examination we went into the effect of poisons. Perhaps there is one question I didn't ask you. Isn't it true that some people can endure a dose of arsenic that would kill some other person?

A. That is most undoubtedly true; that is true of most all agents that we apply to the human body.

3599 Q. But that fact doesn't militate against the destructiveness of arsenic as a poison, does it?

A. No, but it shows the uncertainty of it.

Q. I thought you went into that before. I do not think you will quite say that arsenic as a poison, *per se*, could not be used?

A. I do not think that the State of New York ought to introduce arsenic as a method of killing criminals.

3600 Q. I do not think that is an answer to my question.

A. Yes, it is; because I do not think it is certain enough.

Q. I think my question can be answered yes or no?

A. Well; yes or no.

Q. Which way will you have it?

A. That is the only way I can answer it; I cannot answer it yes categorically, or no categorically, because I do not think it is a certain agent.

Q. Do you have any doubt?

3601 A. No; my dog is dead.

Q. I say, have you any doubt?

A. I beg pardon, sir, I thought you asked me if I had a dog.

Q. I say, do you have any doubt of your ability to administer arsenic so as to produce death in every case?

A. I have a very decided doubt of my ability to use arsenic so as to produce death quickly in every case.

3602 Q. Quickly?

A. By a long and chronic poisoning I presume I could produce death; still, even then, I have a doubt.

Q. I presume the longer and more chronic the death by arsenic—the poisoning by arsenic—becomes, the less its effects are?

A. As a rule; not necessarily so.

Q. Do you know whether Dr. Jolly took—will you state in your epitomy of these experiments whether Dr. Jolly took the temperature of those subjects?

A. No, sir.

By the Referee: 3603

Q. That is, you now state he did not?

A. I mean to say that he did not take them.

By Mr. Poste:

Q. Do you know what kind of current was applied?

A. Yes, sir: I will give you that, one Sieman's unit in every case.

Q. That is a cell, isn't it?

A. Yes, sir. 3604

Q. It was a galvanic current in every case?

A. Yes, sir: and the sulphate of zinc solution wasn't warmed in any given case: that is, not artificially warm.

By the Referee:

Q. Did you state whether the hands touched these metal plates or not?

A. That depended on what portion of the skin he 3605 wanted to test; if he wanted to test the hands, of course he touched the skin—they touched the electrode—but he tested the different portions of the skin all over the body.

Q. Is there any case where the contact was purely a fluid contact?

A. No, sir.

Q. It was all by pressure upon the metal plate?

A. Yes, sir.

3606

By Mr. Poste:

Q. Don't you think, doctor, that that fact itself indicates a great deal of unreliability?

A. The fact—

Q. Doesn't the resistance that is registered or indicated by the measurement—isn't it largely dependent upon or indicated by the pressure of the hands or closeness of contact with the electrode?

3607 A. Unquestionably; it is dependent to some extent upon the pressure, but I think that is a very much exaggerated factor; I think practically it can be left out of account.

Q. You think that one cell would produce sufficient electro-motive force so as to produce an entirely reliable result?

A. I certainly think so, in such experiments as a gentleman of this standing has compared—I certainly think so. 3608

Re-direct examination by Mr. Cockran:

Q. Doctor, those experiments of D'Arsonval upon the dogs, were they reported by Doctor Brown Sequard?

A. Yes, sir.

Q. Where were they reported?

A. I do not know where, but I know he did report them; the Societe de Biologie confirmed those results.

3609 Q. Were not those experiments made in the College de France?

A. That is where Brown-Sequard lectured.

Q. He is a lecturer in the College de France?

A. I am not sure whether they were performed there; I do not know.

Q. Now, doctor, assuming that this death from electricity is caused from shock, wouldn't the will-power which a person who knew the shock was going to be administered to him might exercise have an important effect upon the result? 3610

A. I do not know.

Q. Judging by experiments of shock?

A. Generally; I don't know any experiments that would show the effect of will power on the resistance on the skin. I know the effect on the resistance of the muscle.

Q. No, I am speaking now of the general effect of death by shock. Suppose a person be prepared for anything, whatever it may be, and can exercise his will power upon it, would that have any effect, do you think, upon the result? 3611

A. I do not know; if they got a big enough shock, I do not think will power can resist it. I do not know anything to lead me to suppose one thing one way or the other about it.

Q. All you can say on that subject is that the susceptibility to shock varies?

A. That is all. 3612

Q. And very enormously?

A. Yes, sir.

Q. So that a thing which will produce a fatal shock on one person is no indication that it will produce it on another?

A. That is all I can say.

By Mr. Poste:

Q. Can you tell us what electrical energy was used on these dogs by D'Arsonval? 3613

A. To kill, and the ones he brought to life artificially?

Q. Yes.

A. No, sir; I cannot.

Q. You have no recollection on that subject?

A. My recollection is that that was not stated.

By Mr. Cockran:

Q. He gave them enough to knock them down and make them appear as if dead? 3614

A. That is what I understood; yes.

Q. And upon a careful investigation by an eminent man they gave no signs of life?

A. They didn't respond to the eminent men.

Q. They were subsequently revived?

A. Yes, sir.

Q. Do you remember Mr. Stevens' testimony?

A. I do not.

3615 Q. He is the gentleman that was pronounced dead by the doctors, after having been in contact with the machine in Providence, I believe?

A. Yes, sir.

Q. And whose person was stripped to the skin?

A. Yes, sir.

Q. Were you here when he testified?

A. No, sir.

Q. He received a shock from a powerful dynamo 3616 that held him for a while suspended, and afterward he fell by his weight, breaking the wires, and he was pronounced by the doctor dead, and subsequently revived. Is that an extraordinary incomprehensible case to you?

A. No, sir.

Q. To what would you attribute the revival then? What would that indicate. He said that they worked his arms and legs?

A. I do not know what to attribute it to in that case, because I don't know all the statements.

3617 Q. What would that indicate to you?

A. It would indicate to me that he got a shock that wasn't sufficient to kill him.

Q. But having been apparently dead, he was revived. I want to know what the process of reviving was, as indicated to you by the working of his arms?

A. The working of the arms—alternately expand and contract the chest, and is, practically, artificial respiration.

3618 Q. That is what I mean. You attribute that revival then, as described in that way?

A. I have no doubt it must have operated in that way.

Q. The artificial respiration?

A. Yes, sir.

Q. You wouldn't regard a hyperdermic injection of brandy as artificial respiration?

A. No, sir; that goes without saying.

Q. A gentleman here testified that the subject was treated to artificial respiration by hyperdermic injections of brandy? 3619

A. Yes, sir.

Q. I simply want it on record that that is absurd?

A. Yes, sir.

Q. That is absurd, doctor?

A. Yes, sir: certainly.

By Mr. Poste:

Q. Don't you remember, doctor, that these experiments on dogs that D'Arsonval performed were made with the use of the induction coil instead of with a battery or a dynamo? 3620

A. My impression is that they were made in several ways, but at the same time I am not prepared to state that, because the point that I have observed was simply that death was induced as it appeared to an eminent physiologist, and yet life was brought again by artificial respiration.

3621

By Mr. Cockran:

Q. The character of the current would not make much difference as far as that is concerned?

A. No, I didn't look at that: I looked at the result.

Q. And where the current was enough to kill him apparently: that is all you cared about?

A. Yes, sir: but you have got the citation and you can find that out.

3622

Edward M. McCabe, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

Q. What is your name?

A. Edward M. McCabe.

Q. What is your occupation?

3623 A. House Surgeon of St. Vincent's Hospital.

Q. You were in attendance there the day that a man named Linnell was brought there?

A. Yes, sir.

Q. When did you see him?

A. Yes, sir; I saw him on the morning following his admission to the hospital.

Q. What was his condition?

A. He was then suffering from the effects of the burns which he had received, and had not recovered 3624 from the shock of the previous evening.

Q. Was he in great pain?

A. He was suffering a great deal of pain.

Q. What was the character of the burns that he received?

A. The burns were very extensive, involving almost the entire hand—that is back and front, on the left side, and very deep, extending in some places right down to the bone; the ends of the part of the bone on 3625 the index finger, and also the thumb, were partly exposed. His right hand was also burned, but not as badly as the left. He also had burns superficial about the right elbow, but none between the hand and the elbow on the right side.

Q. How far was the hand burned?

A. About up to the wrist.

Q. Did it look to you as if he had been burned by the application of a hot substance or by chemical action?

3626 A. A hot substance—fire.

Q. It looked like a burn of fire?

A. Yes, sir.

Q. And what became of his hand?

A. His hand was amputated—amputation of the fore-arm, from there (indicating).

Q. When did the amputation occur?

A. Monday afternoon.

The Referee: 3627

That is of this week?

The Witness:

Yes, sir; of this week.

Q. How long before he was brought in?
A. The evening of the 2d of July.
Q. And he has been suffering ever since?
A. Yes, sir. 3628
Q. The amputation became necessary?
A. Yes, sir; at the time the only thing that could be done.
Q. That was the secondary result of the burn—the result of the burn was such that it became necessary to save his life by amputation?
A. Yes, sir.
Q. Wasn't that it?
A. His hand was useless to him; he had no use of 3629 it, and on that account his hand was removed.
Q. That is because it burned through the nerves and muscles?
A. The muscles were burned. He was unable to move his fingers; his hand was an ugly looking mass.

By Mr. Poste:

Q. You say you are a physician?
A. House surgeon and physician. I said I was 3630 house surgeon; I am also physician.

By Mr. Cockran:

Q. Doctor, did you learn the history of this case?
A. I know the history of the case; that is, how the accident happened.
Q. You learned it for the purpose of enabling you to prescribe for it, did you?
A. That wasn't necessary for treatment, but we

3631 desire to become familiar with all cases, and the history is necessary, so that we may become familiar with it.

Q. Just tell the history of the case. Just mention the facts?

Mr. Cockran: (To Mr. Poste.) That is without objection.

Mr. Poste:

3632 I do not want this to go too far. What kind of case is it?

Mr. Cockran:

A case of shock that was received from an electric-light wire. We have got to take his word because the boy is not here.

Mr. Poste:

3633 Let the doctor state.

Mr. Cockran:

Go on, doctor.

A. On the evening on which he was brought to the hospital the patient said—that was after coming out of a restaurant on Eighth Street, near Broadway—he was 3634 struck on the hand by a falling wire; he was knocked down and grasped the wire with his left hand, and as he fell over his right hand also came in contact with the wire and was all burned. He was unable to move or speak, as he states, and said that, although he was pronounced dead by some who were present and saw him fall, he was at that time conscious of everything that was passing, but was unable to make his consciousness known to those who were around him.

Q. Did he suffer any pain?

A. Yes, he did; he spoke of very severe pain, with muscular contraction, showing a mark in the hand where he was burned as it was high up on the arm. 3635

Q. Where the wire did not touch at all?

A. Where the wire did not touch at all. He didn't complain so much of the pain in the hand which was in contact with the wire as he did of the peculiar muscular contraction in both arms.

Q. Was it something like as if his arm had been twisted? 3636

A. As if his arm was being drawn up.

Q. As if he was hung up by the arms?

A. No, not so much that way. As I understand it it was as if this part of the arm (indicating) was being drawn out.

Q. Drawn away from the other part?

A. Drawing the muscles of the shoulders.

Q. And the other muscles pulled around?

A. Of course that was imagination.

Q. It seemed as if his arms were being pulled apart? 3637

A. Yes, sir.

Q. Go on.

A. The ambulance was called.

Q. You say he got those from the wire? How long was he in contact with the wire?

A. I couldn't tell you how long he was in contact with the wire, but the ambulance surgeon told me that he arrived at the spot about ten minutes after the accident happened. 3638

Q. Where was he lying; on the ground?

A. He was lying on the ground; yes, sir.

Q. Go on, doctor. Did the ambulance surgeon say that he was lying on the ground when he came there?

A. I think he gave me to understand that the man was laying on the ground; the man was laying down. He was then brought in the hospital and I saw him the next morning.

3639 Q. How long did these pains continue that he suffered from?

A. He has been suffering—he hasn't suffered the muscular contraction—he hasn't suffered anything of the muscular contraction after being brought in, but he complained of the burn.

Q. The muscular contraction had ceased at that time?

A. Yes, sir.

3640 Q. He was conscious of everything around him?

A. So he says, but unable to express himself.

Cross-examination by Mr. Poste:

Q. Do you know anything yourself about the condition of this wire?

A. Nothing whatever.

Q. What its situation on the ground was?

3641 A. No, sir.

Q. Did I understand you to say that Linnell said that he felt no pain when he was lying on the ground?

A. No. I do not think I made such a statement; I said that he wasn't able to express himself.

By Mr. Cockran:

Q. He did experience pain while he was there, did he not?

3642 A. He said he experienced that severe pain from the muscular contraction that I have described.

Q. All through, when they said he was dead?

A. Yes, sir.

LENA COHEN, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Poste : 3643

Q. Where do you reside, Miss Cohen?

A. 200 Bowery.

Q. Do you know a man by the name of Fred Witte?

A. Yes, sir.

Q. Just tell us when he met with an accident, and describe it?

A. Right next to us there, the number is 200 also; they should have it 200½, but their number is 200, and he is a nephew of this gentleman that he is with, and one evening—Friday evening last year—he was closing the store, and— 3644

Q. You saw this yourself?

A. Yes; no one else but I. I was to tell the people that he was killed, and he touched the—he was coming out of the store and looked up and he jumped up to the light and he came down and his hands commenced getting stiff, and he was instantly dead on the pavement. 3645

Q. He fell on the pavement?

A. Yes, sir; his hands became stiff instantly.

Q. Where were you?

A. Right by our window, and their window is right next to us; it was very warm and I was standing outside.

Q. Do you remember what month this was?

A. It was in December—April.

Q. April last year? 3646

A. The 29th of April.

Q. Won't you describe the electric light that he touched—or the light that he touched. What kind of light was it—lamp?

A. What kind of lamp?

Q. Yes.

A. Well, the regular electric light: I do not know any other; round white globe.

3647 Q. Was it an electric light?

A. Yes, sir; it was an electric light.

By the Referee:

Was it burning at the time?

A. Yes, sir; in a full blaze.

Cross-examined by Mr. Cockran:

3648 Q. Would you mind telling me who brought you down here, Miss Cohen?

A. Brought me down here?

Q. Yes.

A. I came myself.

Q. I assume you did, but who brought you?

A. Myself.

Q. You were outside talking with a gentleman named McQuesten, a little while ago?

3649 A. I do not know the gentleman's name; I have only seen him once.

Q. Where did you see him before?

A. He came to my place to give me the summons.

Q. When was this?

A. This afternoon; half-past one.

Q. A gentleman with a black moustache?

A. No, sir; light moustache.

Q. Do you see him in the room, now?

A. I cannot remember.

3650 Q. Is this the gentleman here, Mr. Brown?

A. No.

Mr. Poste:

She was subpœnaed by Mr. Lardner, who is one of the attaches of the Attorney-General's office, at my request.

Q. Did you see the gentleman's hands after he fell?

A. Yes, sir.

Q. Were they burned? 3651

A. No, sir; not at all burned.

Q. Scorched?

A. Became stiff instantly; I didn't see any scorching.

Q. What was he doing when he touched that wire?

A. What was he doing? Why, I suppose, he wanted to have the light in full blaze, and he thought if he touched it—

Q. (Interrupting.) Did he jump up and touch it? 3652

A. He had touched the light and he came down instantly; I couldn't imagine, really, that he was dead till I saw him fall to the ground, and, I think, the policeman or some man what was there lifted him up and they said, "Why, the man is dead," and then I quickly rang the bell next door for the people to come down.

Q. Did you examine his hands?

A. No.

Q. Then you don't know whether they were burned or not? 3653

A. No.

Re-direct examination by Mr. Poste:

Q. Do you remember his funeral?

A. I do.

Q. Did you attend it?

A. No, sir.

Q. But do you remember seeing the funeral at that house? 3654

A. Yes, sir.

Q. How long after?

A. On Sunday, and the undertaker that took care of him right round the corner from us.

Q. Did you go into the house after his death?

A. No; I was in the house the first night, but he wasn't in the house at that time; he was taken to the undertaker; he wasn't taken in the house.

3655 ALBERT E. SCOULLAR, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

Q. What is your occupation?

A. I am Superintendent of the United States Illuminating Company.

3656 Q. Do you know the wire that Linnell got hold of as testified to here by the doctor?

A. Yes, sir.

Q. Where is it situated?

A. On Eighth Street, just east of Broadway.

Q. Do you know how it came to be hanging down that night?

A. I do not.

Q. Do you know in what condition it was hanging when he came there?

3657 A. I only know from hearsay, but the lamp was burning when he was in there.

Q. The lamp was burning at the time he was on it?

A. No, sir; the wire was broken.

Q. Was it broken under his weight?

A. I cannot say that; I do not know how the wire became broken, but I know the wire was broken.

Q. Can you tell what kind of a machine was supplying the power through that wire?

3658 A. Yes, sir, a Weston machine; 10-light Weston machine,

Q. What voltage was it giving?

A. Well, I think about 1,500 volts.

Q. Was it giving 1,500 volts at that time?

A. Well, it varies a little. There are about 56 lamps on the circuit, and our lamps run from 26 to 30 volts each.

Q. When you say about 1,500 volts, you mean approximately?

A. Yes, sir. 3659

Q. It was not less than 1,400?

A. No, sir; it could not have been less than 1,400.

By Mr. Poste:

Q. Arc lights?

A. Yes, sir.

By Mr. Cockran:

Q. What kind of a night was it, was it a dry or a wet night? 3660

A. A wet night.

Cross-examination by Mr. Poste:

Q. Do you know the facts in the case—the case which is called the Strieffer case?

A. Yes, sir; I know it as such from what came out in the court. 3661

Q. Did you testify in that case that your wires had but a pressure of 600 volts upon them?

A. Upon that circuit; yes, sir.

Q. Is that a different circuit?

A. Yes, sir.

Q. And a different dynamo?

A. And a different dynamo; yes, sir.

Q. The same kind of dynamo?

A. Not exactly; one is a—the dynamo that the current of 600 volts was on was a shunt-wound dynamo. 3662

Q. These dynamos that were on this circuit at Eighth Street and Broadway were not shunt-wound dynamos—straight-current dynamos in series. Are you personally cognizant of any deaths from electrical currents?

A. No, sir.

3663 *Re-direct examination* by Mr. Cockran:

Q. Are you cognizant of a great many shocks?

A. Yes, sir.

Q. How frequently have you known a man to take a shock from a circuit?

Mr. Poste:

That is a pretty broad question; it calls for a conclusion.

3664

The Referee:

He might take it from a full circuit, but he might not get a full current.

Mr. Cockran:

That we understand: I offer the evidence of his getting the shock, and if he can show that any got outside of him it is all right; I want to show that he could have got it if he wanted to trifle with it. (To the witness: Go on.) 3665

A. I know of only two instances where men were in the circuits—a part circuit.

Q. How large were these circuits?

A. One was—three twenty-light dynamo in the series.

Q. Making what voltage?

A. I think, if I recollect aright, it was about 1,600.

3666 Q. What happened that gentleman?

Mr. Poste:

Just one minute, how far is this going on? You proved your case once; this might go on indefinitely; it will never end.

Mr. Cockran:

I promise you it will end to-day.

Mr. Poste: 3667

I thought he proved his case on the direct and original testimony: I do not think he ought to go into it twice.

The Referee:

Let us see what there is of it.

Q. You may state what happened to the man—how he got it? 3668

A. He got it at the switch-board, and he held the two ends of the circuit in his hands by mistake.

Q. How long did he remain there?

A. He was in the circuit over a minute.

Q. What was the result?

A. The result was that he burned both his hands on the inside—they were both burned.

Q. Was he thrown?

A. Then he was thrown off the ladder on to the floor, still holding the ends of the cables in his hands, 3669 and he was pulled away from them.

Q. Well, what results were visible—was he senseless?

A. He was for about ten minutes.

Q. What was his general condition then—was he all right?

A. Then he was weak for an hour, and then he got so that he could walk home. He went home on the horse cars. 3670

Q. What about the other instance?

A. The other instance there were about forty lamps on the circuit.

Q. What voltage?

A. Eleven hundred or twelve hundred.

Q. How did he get out?

A. He was taking a tell-tale lamp out of the circuit and he had hold of the lamp in his left hand, and was pulling the wire from the binding post with his right

3671 hand—was pulling it out far enough just so that we could put a short circuit on it in order to take the lamp out, and when he pulled it it pulled out entirely, instead of remaining on the binding post—he pulled it away entirely, so he was in the circuit direct. We pulled him away from the circuit and he sat down upon the floor. He was not insensible. He sat up and spoke.

Q. Did he groan?

3672 A. Sir?

Q. Did he groan?

A. No; I don't think he did.

Q. How long was he on the floor before he got up?

A. Probably he sat there fifteen minutes, I should think.

Cross-examination by Mr. Poste:

Q. Where were you at the time of this first accident that you have described? 3673

A. I was in the—I guess I was about fifty feet away from him.

Q. What were you doing?

A. I was standing by one of the dynamos.

Q. Did you see him before he was rescued—this first man?

A. Yes, sir.

Q. You saw him before he was extricated from the wire? 3674

A. Yes, sir.

Q. You swear to that positively?

A. Yes, sir.

Q. What did you do—how was your attention attracted to him?

A. By some one making a noise.

Q. You say that he pulled down the wires from the switch-board when he—

A. The cables that were attached to the switch board.

Q. Are those cables insulated? 3675

A. They are, but he had hold of the plugs.

Q. You have not answered my question. Were they insulated?

A. Yes, sir.

Q. Do you know anything about how he got in that position, except what you heard?

A. No: I didn't see him get in that position.

Q. Was he up on the ladder?

A. Yes, sir: a step ladder. 3676

Q. When was this?

A. Oh, that was either three or four years ago.

Q. What kind of dynamos?

A. Weston dynamo: United States dynamos.

Q. (By Mr. Cockran.) Westinghouse?

A. No, sir: Weston.

Mr. Poste:

Q. Arc-light dynamo?

A. Yes, sir. 3677

Q. Does it have a regulator attached?

A. No regulator.

Q. You don't know anything about how many lights were on the circuit at that time?

A. Only from reports made to me.

Q. You don't know personally?

A. No, sir.

Q. What time of the day was it?

A. I can't say. I think it was in the afternoon. 3678

Q. The object of this regulator is to reduce the energy of the machine with reference to the number of lights burning?

A. Yes, sir.

Q. Can you tell us what time that was?

A. I don't recollect now whether it was in the forenoon or afternoon.

Q. How many lights did you say were on the circuit not burning, but altogether?

3679 A. There were three twenty-light machines. I don't recollect how many lights there were on the circuit; I don't think there were more than sixty lamps.

Q. I mean on that circuit. You don't remember how many?

A. No; but there must have been more than forty.

Q. Forty lamps altogether?

A. There must have been over forty; yes, sir.

3680 Q. And what was the voltage of each one of these lamps?

A. They ran from 26 to 30 volts each.

Q. They were these lights that were on the circuit?

A. They were distributed through the city.

Q. What proportion of them were on the street?

A. There were none on the streets; they were inside lights.

Q. All are lights inside?

3681 A. Yes, sir.

Q. In what kind of establishments were they?

A. Well, in wholesale dry goods stores, houses, in apothecaries' stores, and retail dry-goods stores.

Q. What was the date of this accident?

A. Well, it is three or four years ago; I am not sure.

Q. Are you a stockholder in the United States Company?

3682 A. I am not.

Q. How long have you been in their employment?

A. Nearly seven years.

Q. What kind of—do they use the alternating current?

A. They do now, within the past month.

Q. What kind of machines were these machines that were in use at the time this man received this shock?

A. Which man, sir?

Q. This first man that you have described? 3683

A. In Eighth street—the man outside?

Q. The man at the switch-board?

A. The man at the switch-board; what kind of machines were they?

Q. What kind of current was generated by those machines?

A. Direct current.

Q. Continuous current?

A. Yes, sir. 3684

Q. What was the other case that you described?

A. The same kind of machine.

Q. Where was that?

A. That was at the station we had at 44th street near the Central Railroad Depot.

Q. That was the case where a man got hold of the lamp with one hand and pulled the wire with the other?

A. Yes, sir.

Q. What time of day was that? 3685

A. That was in the night.

Q. That was in the night?

A. Yes, sir.

Q. What was the make of that dynamo?

A. That was a Weston dynamo.

Q. The same class?

A. Yes, sir.

Q. Describe that lamp with reference to its insulation? 3686

A. The lamp itself, one side rod is insulated from the lamp and the other side rod is not. The current passes down through one side rod, or down through the carbon points and up through the side rod, and from there to the body of the lamp and out into the circuit.

Q. What kind of wire was attached to the lamp which he got hold of?

A. No. 4.

3687 Q. Insulated.

A. Yes.

Q. Well, can you swear positively which side of the lamp he got hold of?

A. No; I can't.

Re-direct examination by Mr. Cockran:

Q. He ultimately got hold of both sides, didn't he?

3688 A. He got hold of both sides of the circuit.

Q. You have been asked if the wire in this case was insulated. Was the part that he got hold of insulated?

A. Partly so. He held it in his hands this way (indicating), and of course part of his hand came over the insulation and he was pulling with his thumb just to take the wire out of the binding-post far enough, so that we could put another wire over it.

Q. Was the live wire in contact with his body?

3689 A. Oh, yes, sir.

Q. I mean the bare wire?

A. Yes, sir.

Q. You were asked also if the cables that this man held—he got hold of the cables—if they were insulated, and you said yes?

A. Yes, sir.

Q. Was there any part of them in contact with his body that was not insulated?

3690 A. Not of the cables, but the plugs in the switchboard.

Q. They were direct contact?

A. Yes, sir.

Q. And there was no insulation on that?

A. No, sir.

Q. Was the second man burned?

A. Yes, sir; they were both burned.

Q. Burned on the hands?

A. Yes, sir.

Q. Badly burned? 3691

A. Yes, pretty badly burned.

Re-cross examination by Mr. Poste:

Q. What do you mean by the plug on the switch-board?

A. The cable is attached to the plug and has a wooden handle and the handle is taken off to place the plug into the socket on the switch-board so as to 3692
connect the circuits together or dynamos together.

Q. Well, tell us a little more about that plug. How is it used? I didn't quite get that in my head.

A. Well, the circuits and dynamos are brought to the switch-board for convenience—

Q. Yes, I understand that.

A. (Continuing.) With the end in a socket and then the dynamo is connected with a circuit by these flexible cables. At the end of these cables there is a plug that fits into this socket; one end to the dynamo and the 3693
other to the socket.

Q. Will you swear that the insulated side of that lamp was perfectly insulated—that caused the accident in the second case?

A. No I don't think I can swear to that. I didn't examine the lamp afterward.

BENJAMIN F. LINNELL, called as a witness on behalf 3694
of the Relator, being duly sworn by the Referee, testified as follows:—

Direct examination by Mr. Cockran:

Q. Mr. Linnell, you are the father of the young man that was hurt by contact with an electric-light wire; are you not?

A. Yes, sir.

3695 Q. What is your business?

A. Well, I am manager of a New York house for an eastern manufacturing concern.

Q. Did you see your son while he was in contact with the wire?

A. I did.

Q. Did you see how it began—were you with him at the time he came in contact?

A. Yes, I was with him, but not at the moment he
3696 fell. I did not see him when he fell, but within 15 seconds I saw him.

Q. Did you see the way the doctor described—the way he had the wire?

A. No, it proves that he did not, but I thought so at the time; he had both hands—both hands were drawn up close to his breast, and I thought that he had hold of it with both hands, but it proved that he grasped it with only one.

Q. Did he touch it with the other?

3697 A. Yes, the wire rested across, but I do not know just how; it seemed to cross his wrist also. His thumb was burned to the bone and a place as large as my two fingers burned in the wrist.

Q. That is on the hand that he did not have hold with?

A. Yes, that is on the right hand.

Q. Now, Mr. Linnell, how long was he holding the wire in the way you described?

3698 A. As near as I could judge, about three minutes. I have heard that stated by others who saw him.

Q. And that is your own recollection?

A. Yes.

Q. How did he get loose?

A. By the cutting of the wire.

Q. And then what happened him?

A. Well, almost immediately afterward he began to rouse himself and spoke.

Q. When you first saw him, was he partly on the ground?

A. He was entirely so. He was lying at full length on the sidewalk. 3699

Q. And the hand pulled up like that? (Indicating.)

A. Yes, sir; he had not left my side more than ten seconds until just at the time when he stepped to the door and I went immediately after him.

Q. After the wire was cut did he lie any length of time on the ground?

A. No, perhaps a minute—not more than that.

3700 Q. Did any doctor come there before the ambulance arrived?

A. Not that I know of. There were a great many there, but I don't know whether there was a doctor.

Q. They were all bystanders?

A. Yes—what.

Q. They were all simply chance bystanders?

A. Yes, sir.

Q. What became of him after you took him off the wire? 3701

A. I helped him to his feet and, with the aid of one of the bystanders, we took him into the restaurant.

Q. And laid him down there?

A. We laid him down on the floor first and after a few minutes got him up and sat him in a chair.

Q. Did he complain of terrible pain?

A. Not at that time; no, sir.

Q. When did he complain?

A. He did not complain of any pain for some days afterward—two or three days afterward. He complained of being in terrible agony while he was on the ground. 3702

Q. While he was on it?

A. Yes, sir, but after that—it was either from the effect of the electricity or the opiates that were given him, he did not seem to suffer from his wounds that night.

3703 *Cross-examination* by Mr. Poste:

Q. You saw the accident?

A. I did not see him when he grasped the wire.

Q. Was this wire hanging down to the ground?

A. No, sir. He saw no wire—there was no wire in sight; as he stepped to the door he simply fell on it.

Q. Was the wire broken?

A. It burned off just below. The wire is a branch wire running about 100 feet to a saloon on Eighth
3704 Street and there was no support on Eighth Street for the wire—not from the post until it gets to the door of this saloon and it runs about 12 feet from the sidewalk.

Q. About 12 feet high?

A. About 12 feet high. We sat in this restaurant. I was eating but he was not. We were within six feet of the door when a bright blaze seemed to spring up outside and light up the whole window and the proprietor of the restaurant and the young lady who sat
3705 there— said, "I guess some one is hurt." My boy and those two stepped to the door, and I immediately after, but I stopped perhaps to eat one mouthful and I stepped after them and I heard this young man scream and I stepped to the door, and I saw this man lying on the walk. I had no thought then of its being my son because he had been at my side, but when I stepped out I saw him there with his arms drawn up close to his breast, fire issuing from his hands, quite a bright blaze, and, of course, I set myself to work to liberate
3706 him as quickly as possible. I had no thought except to get it out of his hands. I kicked it with my feet two or three times, but it threw me down twice, and I had an umbrella and tried to pull the wire out, and it threw me out in the road; those who saw me said they guessed I went twenty feet; I found myself in the middle of the street, anyway.

Q. Was he lying on his back at the time?

A. He was lying just partially on his side.

Q. What was the date?

A. Sir. 3707

Q. What date was this?

A. This was the evening of July 2d.

By Mr. Cockran:

Q. A wet evening, I understand?

A. Yes, it was raining quite hard.

By Mr. Poste:

3708

Q. Was it raining hard at that time?

A. Not at that time, but it rained just as we went over from my rooms to the restaurant and it rained afterward, but the sidewalk and street were very wet and muddy.

Q. Was your son on the sidewalk—had he fallen on the sidewalk or on the pavement?

A. On the sidewalk.

Q. Lying on his back?

A. First he was partially on his side and rousing a 3709 little but in half a minute perhaps he straightened himself out and laid perfectly still and almost entirely on his back.

Q. And the wire lay across him?

A. Well, I can hardly say that. He had it in both hands, grasped here in this way (indicating).

Q. Where was the end of it?

A. It laid beyond him some 30 feet or more.

Q. I mean the end on the ground. 3710

A. On the sidewalk.

Q. The end of it lay about 30 feet off on the sidewalk?

A. Yes.

Q. Then, how far was it from where your boy was lying on his back, there—the connection of the wire with the pole?

A. About 60 feet, I should judge.

Q. It was one of these white wires, was it not?

3711 A. Yes, sir. It seems that it was this that made the blaze. It burned off what they call the insulation —the covering—when he fell.

Re-direct examination by Mr. Cockran:

Q. Did I understand you to say that when you touched your boy with your umbrella you got a shock that threw you into the middle of the street?

3712 A. I did not touch the boy, I touched the wire.

Q. With an ordinary umbrella, a wooden handle?

A. No, it was metal; ordinary metal handle umbrella; I took hold of it.

Q. Tried to pry the wire off of him?

A. Yes.

Q. And you were thrown into the middle of the street?

A. Yes, sir.

Q. There was a steel ferrule on the umbrella, but 3713 the handle of the umbrella was wood?

A. No, it was a metal handle.

Q. And you were thrown about 20 feet, you say?

A. Some one said so.

Q. You found yourself thrown from the sidewalk into the middle of the street?

A. Yes, sir.

By the Referee:

3714 Q. What were the ribs of the umbrella made of that held the cloth of the umbrella up?

A. They were steel.

By Mr. Poste:

Q. Has the company made any compensation to you?

A. No, sir.

Q. No money at all?

A. No, sir.

Q. Have they made any statement or offer? 3715

A. No, sir.

By Mr. Cockran:

Q. While your son was on that wire lying there, did he give any sign of life or did he appear to be dead?

A. No, sir, except the first few moments.

Q. And then he lay perfectly still?

A. Yes, sir. 3716

MINOR M. DAVIS, called as a witness on behalf of the Relator, being duly sworn by the Referee, testified as follows:

Direct examination by Mr. Cockran:

Q. Mr. Davis, what is your business?

A. I am assistant electrician of the Postal Telegraph Company. 3717

Q. Did you make any experiments to-day to ascertain the resistance of the human body?

A. I did.

Q. What instrument did you use?

A. I used a Wheatstone bridge and an Elliott galvanometer.

Q. What electrodes did you use?

A. I used the most convenient one. I had two Crowfeet zincs in a solution of caustic soda in a jar. 3718

Q. How many did you measure?

A. I measured five people twice, and two only once.

Q. Now, the five that you measured twice, what intervals were there between the two measurements?

A. About half an hour.

Q. Did you take the measurements under the same conditions as far as you could?

A. Yes.

3719 Q. Give me the resistances of the first experiments. Have you got it on paper?

A. I have only a memorandum. The first one was 1,150, the next 1,650, the next 2,650, the next 1,350. I would like to say here that my own resistance was measured by Mr. Jones, the electrician of the company, and I cannot swear that these figures are correct, but I am morally certain that they are. I read the figures on the rheostat, but I did not see the balance sheet; but that is one of the five—that is 1,950— 3720 my own resistance on the first test.

Q. Now, on the second test?

A. On the second test the first person was 1,310.

Q. What was he on the first?

A. 1,150. He had changed to 1,310; the next from 1,650 had changed to 2,210; the third from 2,650 had changed to 2,230; the next from 1,350—there was no change; and my own resistance from 1,930 had changed to 2,200.

3721 Q. That was under precisely the same conditions?

A. As near as I could judge.

Cross-examination by Mr. Poste:

Q. What kind of electrodes did you say you used?

A. Two Crowfoot zincs.

Q. Held in the hand?

A. No; they were at the bottom of the glass jar 3722 containing this solution. The hands were placed in this jar and doubled and rested upon the zinc—the back of the hands.

Q. Doubled and rested upon the zinc?

A. Yes.

Q. And under the same conditions at the second time?

A. Yes, sir; as nearly as I could get them.

Q. Was the liquid of the electrode changed during that time?

A. The liquid was not changed. 3723

Q. What did you say you used?

A. Caustic soda: diluted, of course, so you could hold your hand in it.

Q. What was the percentage of soda?

A. I had no instrument for measuring it, but it was just so that you could hold your hand in it comfortably.

Q. These tests were made how far apart?

A. About half an hour. I can give you the exact 3724 time if you wish it.

Q. Did you observe the period of time of contact in these cases?

A. Yes: the measurements consumed about three-quarters of a second by the watch—that is to each person. They were about three-quarters of a minute, I should say.

Q. Did you actually time it?

A. Yes, sir: I used the watch. It was between half a minute and three-quarters time that it took me. 3725

Q. What were the subjects doing between the time of the examination: nothing—sitting around?

A. Sitting around.

Mr. Cockran:

On this subject take this offer: The Relator offers for the purpose of getting information on this subject that will be definite and certain, to attend at Mr. Edison's laboratory, or anywhere else that may be selected 3726 by the representatives of the State, and produce five persons to be measured, and we will see whether they are right or not.

Mr. Poste:

If Mr. Edison consents, we will do it.

By the Referee:

Q. In these cases were the hands allowed to remain in the solution for a while before the current was

3727 turned on, or was the current turned on and the hands put in?

A. There was very little interval.

Q. Very slight?

A. It was, as I judge, a sufficient interval to remove the oil from the hands.

Q. Were they washed with soap and water before they were put in?

A. No, sir.

3728 By Mr. Cockran:

Q. They were not washed before either test, were they?

A. They were washed between the tests; that is, after the first test they would naturally go and wash their hands.

By the Referee:

3729 Q. Do you know whether they did or not?

A. Yes, sir; I saw them do it.

Mr. Cockran:

I close now, I call no more witnesses.

Wm. T. Jenkins, called as a witness on behalf of the People, being duly sworn by the Referee, testified as follows: 3730

Direct examination by Mr. Poste:

Q. Where do you reside?

A. 116 Lexington Avenue, New York City.

Q. Are you a physician and surgeon?

A. Yes, sir.

Q. How long have you been such?

A. Since 1879—10 years.

Q. Did you hear of the accident which happened to one Thomas Murray, at 616 Broadway, last year? 3731

A. I was sent to 616—I think it was—Broadway, to investigate the death of a man who was said to have been killed there by the name of Thomas Murray. When I arrived at the place the body had been removed to his residence, 45 Madison Street.

Q. Did you go to that place?

A. I went to that place on the following day and there made an examination—an autopsy, a post-mortem examination. 3732

Q. The body was dead when you arrived there?

A. Yes, sir.

Q. Do you remember of hearing of the death of James Witte?

A. Yes, sir; I was asked by Dr. O'Meagher, who was coroner in that case, to attend the autopsy with him.

Q. Where did that occur?

A. That occurred at 25 Spring Street, the undertaking establishment of Mr. Slevin. 3733

Q. The death, where did that occur; do you remember?

A. Oh, that occurred on the Bowery, near Spring Street; I do not remember the number.

(It is conceded that these are the two cases testified to to-day.)

3734

Q. You saw the body of James Witte?

A. Yes, sir.

Q. Was it dead?

A. Yes, sir; the post-mortem examination had partly been made before I arrived.

By Mr. Cockran:

Q. Then you were certain that he was dead?

3735 A. Yes, sir.

By Mr. Poste:

Q. Have you the account of the other case—Myer Strieffer? You examined the body of Myer Strieffer?

A. Yes, sir.

Q. Where?

A. At his residence.

Q. Where is his residence?

3736 A. 49 Forsyth Street.

Q. When did you make that examination?

A. On the following day after his death; I think it was on the 16th of April, 1888.

Q. Of what month?

A. The 16th of April, 1888.

Q. The 16th of April, 1888?

A. Yes, sir; I think that was the date.

3737 Mr. Poste:

Will you concede the death of Myer Strieffer by touching an electric-light wire?

Mr. Cockran:

No; I think that is disputed; isn't it?

3738 Q. What was the condition of the body of Myer Strieffer?

A. Myer Strieffer's body when I arrived there was in an ice-box, and I had it removed and found all the ordinary signs of death and proceeded to make a post-mortem examination. I found very few lesions—that is, I could not trace the current to the point of contact, but found no other diseased condition in any of the organs—the brain or other organs of the body—abdominal or thorastic.

Q. Did you find any burns on the body? 3739

A. No, sir.

Q. Have you given the date of that examination of yours?

A. Yes, sir; on the 16th, to the best of my knowledge.

Q. And the place you have given?

A. 49 Forsyth Street.

Cross-examination by Mr. Cockran: 3740

Q. Were there any burns on either of these men?

A. Yes, sir.

Q. Which one?

A. On lineman Murray; there were burns on his right hand extending down to the palm and involving nearly the whole hand. There were burns on his knees—on the cap of both knees—where he kneeled upon the ledge of the window sill—metallic ledge— 3741 and also his clothing was burned corresponding to that contact with his knees.

Q. In any of these cases, did you see anything that would indicate cause of death in the post-mortem examination?

A. The post mortem examination of itself showed no particular cause of death; nothing that we could attribute it to without external evidence. On the other hand, there was no lesion existing anywhere to account for his death otherwise than by the history of 3742 the case.

Re-direct examination by Mr. Poste:

Q. What was the condition of the body of Fred Witte? Were there any burns there?

A. Fred Witte had some slight burns, but I do not recollect which hand they were on.

3743 Q. On one hand?

A. I think on one hand.

Re-cross examination by Mr. Cockran:

Q. How long after the death—after the alleged death—did you see these bodies?

A. I saw Witte on the following day, in the afternoon. He was killed in the evening some time. I saw Strieffer on the day he was killed. 3744

Q. How long after?

A. I think about—he was killed in the early morning and I saw him in the early part of the evening, but did not proceed to make an examination then.

Q. He was on ice at that time, was he?

A. Yes, sir.

Q. And the other men?

A. All three. I think, were on ice.

Q. I know, but what was the distance of time you saw him? 3745

A. Murray?

Q. Yes.

A. The following morning, I think it was.

The Referee:

Is there any further evidence here on either side?

Mr. Cockran:

3746 I have no more evidence now, sir.

Mr. Poste:

Neither have I.

The Referee:

Then this proceeding is adjourned to meet on the 31st day of July, at 10 o'clock A. M., at 23 West Eagle Street, Buffalo, New York, at the office of Fullerton, Becker & Hazel.

Proceedings of Wednesday, July 31st, 1889, held at room 34, City and County Hall, Buffalo, N. Y. 3747

By the Referee:

Before we proceed, I desire to state that I have a communication from Dr. Landon Carter Gray, in which is enclosed a table taken from Dr. Jolly's work, which he copied in response to your request.

There being no objection made the same was received in evidence, being a table of the resistances of the human body, copied from Dr. Frederick Jolly's work, and sent to the Referee as a part of Dr. Gray's evidence, and marked Relator's Exhibit "E." 3748

The Referee was then requested to send the telegraph to Mr. Durston that both parties desired to have him examined to-morrow.

Mr. Brown then produced a diagram, which was received in evidence, and marked Relator's Exhibit "F," and it was then agreed that Mr. Brown should have one hundred photo-lithographic copies of "Exhibit F." 3749

By Mr. Poste:

In regard to this table marked "E," I desire to enter an objection to it, that it contains no statement whatever as to the size of the electrodes used, the length of the time of contact, and I hardly think it complies with the terms of the stipulation we made at that time; 3750 and it was distinctly understood that he should certify as to the correctness of the figures.

John A. Hoffmeyer, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. Where do you live?
A. 150 East Street.

3751 Q. What is your profession?

A. I am a physician.

Q. How long have you been a physician?

A. Nine and one-half years.

Q. Did you know a man by the name of Samuel W. Smith in his lifetime?

A. No, sir.

Q. Did you make an autopsy upon the body of Samuel W. Smith?

3752 A. Yes, sir.

Q. Do you remember when that was?

A. It was August 9th, 1881, I believe.

Q. Where did you make the autopsy?

A. At Rodney's morgue.

Q. In this city?

A. Yes, sir.

Q. What time of the day was it, if you recollect, that you made the autopsy?

A. I think it was in the afternoon.

3753 Q. Were you assisted by any person?

A. Dr. Barker was there, as far as I can remember.

Q. He is now dead?

A. Yes, sir.

Q. You understood that Samuel W. Smith had met his death by an electric shock?

A. Yes, sir.

Q. Tell what you did in making the autopsy?

A. I opened the thoracic cavity, and also the abdominal cavity, and I found that the lungs were in a 3754 state of hypostatic congestion, and also some pleuritic adhesion on the right side. The stomach was congested, and there was an alcoholic odor emitted from the stomach.

Q. He was a drinking man, as you understood it?

A. Yes, sir; the blood was in a fluid condition. And the brain—there was nothing found, it was in a normal state.

Q. Were there any marks upon the body or the members of the deceased?

Q. I cannot remember exactly, but I think the hands were marked or burned; were black. 3755

Q. Do you remember what portion of the hands?

A. No, sir; I do not know.

Q. It was some time ago?

A. Yes, sir; it was some time ago.

Q. Did you discover any cause of death in his body?

A. Well, the autopsy did not show any cause of death.

3756

Q. You speak of the lungs being somewhat adherent; that was not sufficient to cause death of itself?

A. No, sir.

Q. Did you hear the testimony taken upon the trial?

A. I was present at the Coroner's inquest.

Q. Did you hear the testimony?

A. I didn't hear all, as I remember.

Q. You there learned where he had met his death?

A. I was told. 3757

Q. Where did you ascertain he had been killed?

A. Somewhere on the Island.

Q. At the works of any company?

A. At the Electric works, I believe.

Q. You made a report as to the cause of death: that is, you formed an opinion as to the cause of death?

A. Yes, sir, I formed an opinion: it was caused by electricity.

Q. Have you made any study of the effects of an electric shock on the human system? 3758

A. No, sir; not very thoroughly.

Q. To what do you attribute this fluid condition of the blood?

A. To the electric shock.

Q. Do you know that that is one of the evidences of an electric shock?

A. Yes, sir.

Q. Can you tell how that occurred?

3759 A. I cannot tell exactly; no, sir, the pathology of it.

Q. Did you endeavor to trace the course of the electric shock?

A. No, sir.

Q. Did I understand you to say that the heart was in a normal condition when you made the autopsy.

A. It was in a normal condition.

Q. Was there any blood in the heart?

A. I don't remember.

3760

Cross-examination by Mr. Cockran:

Q. If you had not known that this man had received an electrical shock, would you have been able to decide or form an opinion as to what caused death?

A. Yes, sir; I should have formed an opinion that it was caused by an electric shock.

Q. Even if you had not known he had received one?

3761 A. No, sir.

Q. If you had met this party on the highway and you knew nothing about the causes that were considered to be the cause of death, would you from your post-mortem examination have been able to decide and form an opinion from the evidences contained in the body itself?

A. No, sir.

Q. You said that the hands were burned?

3762 A. Yes, sir; I have a slight recollection; I do not remember very well.

Q. How long after this man died did you see him?

A. I don't remember, but we generally performed the autopsy the next day.

Q. You don't remember whether you saw him an hour or two after receiving the shock?

A. No, sir.

PHILIP FOGERTY, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows: 3763

Q. Where do you live?
A. 73 Court Street.
Q. What is your business?
A. Undertaker.
Q. What was your business in 1881?
A. The same business; undertaking.
Q. Were you at the electric works on Genesee Street on Sunday, August 7th? 3764
A. No, sir.
Q. You were a witness, weren't you, before the Coroner's inquest in the case of this man Smith, alleged to have been killed about August, 1881?
A. I was not on Genesee Street.
Q. Where were you?
A. On Ganson Street.
Q. What day of the week was it?
A. I couldn't tell you when it was; I didn't know anything at all about it. 3765
Q. You were sworn before the Coroner's inquest?
A. Yes, sir.
Q. Did you see a man there at the electric works by the name of Smith that was killed?
A. I don't remember his name.
Q. Did you see a man dead there?
A. He was not dead when I was there.
Q. Did you see a man touch a machine there? 3766
A. Yes, sir.
Q. Do you remember about what time of day or night it was?
A. It was in the night time; I don't know what time it was; I didn't pay any attention to it.
Q. What did you see there; tell the Referee what you saw in regard to this man, alleged to have been killed by electricity?
A. I just saw the man there and the machine.

3767 Q. Where was he?

A. It was at the electric works.

Q. What business was he in?

A. He was standing outside; I forget whether there was a railing or not: I think there was a railing between him and where this machine was, and he took hold of the two; I don't know what you call them; I think they are brushes.

Q. An electric machine?

3768 A. Yes, sir; he took hold of them.

Q. And you saw him take hold of them?

A. Yes, sir; they tried to get him off and they had to stop the machine, and after stopping the machine they, some parties, drew him back and laid him on his back on the floor.

Q. Could they take him off before they stopped the dynamo?

A. They had to stop it before they took him off.

Q. When they took him off, what happened; what 3769 did they do with him?

A. Something was said about sending for a doctor. They laid him on his back.

Q. What condition was he in?

A. He seemed to be almost dead; he was not dead at the time I was there.

Q. What was he doing?

A. Nothing.

Q. Was he breathing?

3770 A. Yes, sir; some, I think. I just went away as soon as they laid him down; I didn't wait any longer

Q. Did you see him afterward?

A. Yes, sir.

Q. When; how long after?

A. The next day, over in Rodney's undertaking rooms.

Q. What condition was he in then?

A. He was dead, I suppose.

Q. How long, if you can tell, was he attached to this machine that you saw?

A. Perhaps half a minute or so: I don't think it was any longer. 3771

Q. A short time?

A. Yes, sir.

Q. He was standing up when you first saw him?

A. Yes, sir.

Q. What position was his head in?

A. I noticed that he was under the influence of liquor at the time.

Q. Did you notice what position his head was in when you first saw him, after he was attached to the brushes? 3772

A. No, sir. I was standing alongside of him, but I didn't pay any attention.

Q. Did you put your hands on him?

A. No, sir.

Q. How many took hold of him to pull him off the machine?

A. I couldn't tell you.

Q. More than one? 3773

A. I would not be positive; I did not pay attention to the thing at all. That is at the time; there were three or four around him at the time, that laid him out.

Q. Did you hear him say anything?

A. No, sir; he never spoke.

Cross-examination by Mr. Cockran:

3774

Q. How did you happen to be there?

A. I was going by, myself and another party, and I went in to see the thing work, just to look at it. There were four or five parties in there, and there was one took hold of it and then they took hold of each other's hands to get a current and this man was there also, and he says, "I can take it and get a current anyhow," and he took hold of the two copper fixings or brushes or whatever they call them.

3775 Q. He took hold of them with his hands?

A. Yes, sir.

Q. Did you notice his hands afterward?

A. I didn't look at his hands. I don't know whether it was the engineer or who made the remark, "He is gone; he is all burned up inside." I think the engineer said that.

Q. He was laid out on the ground?

A. Yes, sir.

3776 Q. He wasn't dead then?

A. Not at the time I left, he was not dead.

Q. Was he unconscious?

A. I guess he was; he didn't say anything.

Q. Do you know whether anybody made any effort to revive him?

A. I didn't wait there; they were talking about sending for a doctor and to the police station, but I didn't wait.

Q. None of those who stood around did anything to revive him that you saw? 3777

A. No, sir; they just merely took him off—he couldn't stand—and they laid him back. He seemed to be unconscious and did not speak. But I know he was breathing at the time.

WALLACE HARRINGTON, called and sworn on behalf of the People, and examined by Mr. Quinby, stated as follows: 3778

Q. Where do you live?

A. 1,516 Niagara Street.

Q. What is your business?

A. I am a police officer of the Buffalo City police force.

Q. Do you remember this accident on Ganson Street in 1881?

A. Yes, sir.

Q. Do you remember the day of the week it was? 3779

A. I don't exactly remember the day of the week; I know it was the summer of 1881. I should say along about the middle of the summer.

Q. Were you at the works of this company on the day of this accident?

A. I was not in the works during the day, but I was around there.

Q. Did you know this man Smith in his lifetime?

A. I did not know him previous to this, that I saw 3780 him there; it was about eight o'clock in the evening I saw him there.

Q. Just state to the Court what you saw?

A. Well, the electric light on the Island at that time was something new, and most every evening there was a large crowd to see the works and see the lights. I went on duty there that evening at 6 o'clock, and we had special orders to look after the crowd around the works. This man came there and went into the engine room and I drove him out. He was gone a little 3781 while and came back and went in again. I drove him out the second time and then took a walk up Ganson street toward the turnpike—what would be the foot of Louisiana Street—and turned around and came back. As I came back this man had just stepped into the door of the engine room again and there was a little railing right in front of the dynamo about two or three feet high, and he reached over with his right hand and caught hold of one of these copper brushes and he 3782 reached over with the left hand and took hold of another brush, and just the second he got hold with the left hand he dropped right down, his hands hanging over the railing holding the brushes. He dropped down on the opposite side. There was quite a crowd around the door that evening, and some of them was going to grab him and pull him away, and the engineer, Mr. George Beety, who was running the engine at that time, and Mr. Chaffee had charge of the works

3783 in the evening, and the engineer hollered to them not to touch him and he stopped his engine as quick as he could, and after he stopped the engine he said if they had taken hold of him and formed a current there was current enough to kill a hundred as quick as it had killed him. They took him and carried him outside and laid him down and sent for the Coroner.

Q. Did he make any exclamation after he took hold of the second brush?

3784 A. No, sir.

Q. Did he make any noise or outcry?

A. No, sir.

Q. How long did he remain there?

A. That I couldn't say.

Q. How long did you see him?

A. Well, he was there half or three-quarters of an hour; perhaps an hour; I couldn't say exactly.

Q. Were you there all the time?

A. Yes, sir.

3785 Q. Describe him. How long after he touched these brushes before you thought him to be dead?

A. They all considered him to be dead just the minute he fell.

Q. Did you see any indications of life after he touched the brushes?

A. No, sir; he turned a sort of bluish or purple color.

Q. Did you notice his hands?

3786 A. Yes, sir.

Q. Were they burned?

A. Right in here on both hands between the thumb and the first finger, I should say an inch long the skin seemed to be cut through; whether it was burned or not I don't know. It turned a sort of greenish cast.

Q. He was removed from there to what place?

A. To the morgue.

Q. Before whom was the inquest held?

A. I believe Coroner Fowler.

Q. How large a man was he? 3787

A. He was a man that would weigh 172 or 173.

Q. And about how tall?

A. Five feet nine or ten, I should judge.

Q. And about what age?

A. I should judge he was in the neighborhood of 35.

Q. Do you know this place where he was killed, or the appliances, what Electric Light Company it was? 3788

A. The Brush Electric Light Company.

Q. That was one of the machines or dynamos that are used in the electric lighting of Buffalo?

A. Yes, sir; I think that was the first one that was used in Buffalo for that purpose.

Q. Did you go with the body to the morgue?

A. No, sir.

Q. Did you see the body afterward at the morgue?

A. No, sir.

3789

Cross-examination by Mr. Cockran:

Q. Was there a doctor summoned?

A. Yes, sir.

Q. How soon did he arrive?

A. It couldn't have been over half or three-quarters of an hour.

Q. What did the doctor do?

A. They examined him, but I don't remember what remark was made about it. 3790

Q. Do you remember what doctor it was?

A. No, sir.

Q. I see by the testimony of Mr. Hayner—do you remember him being sworn on the inquest?

A. No, sir; they were mostly strangers to me at that time.

Q. Hayner swears, after describing the way they took him out: "He then groaned four or five times." Did you hear him groan?

3791 A. No, sir.

Q. You are quite sure you did not?

A. I am quite positive he did not; I helped to carry him out.

Q. And stood alongside of him?

A. Yes, sir.

DR. DELANCEY ROCHESTER, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows: 3792

Q. You are a practicing physician and surgeon?

A. Yes, sir.

Q. And also a post-mortem examiner of this county?

A. I am not, now; I was.

Q. Do you recollect the case of the death of the negro here in Buffalo, alleged to have been killed by electricity? 3793

A. Yes, sir.

Q. What was his name?

A. I can read from my notes.

Q. You have your original minutes with you?

A. Yes, sir; and if you like I can read them.

Q. When was it; give us the date?

A. The date of the autopsy was February 6, 1888. I don't remember, now, whether the man was killed on that day or the night before. 3794

Q. You were a post-mortem examiner at that time?

A. Yes, sir.

Q. You may go on and describe the autopsy.

A. (Witness reading from minutes.) "Isaac Molton, negro, age 31, six feet tall; external appearance of the body well formed and well nourished. On the back of the right hand, just above the thumb, the epidermis shrivelled and gone; on the left hand, the little and ring fingers; the epidermis destroyed on the

palm and partially on the dorsal surface of the first 3795
phalanx; also on the inside of the middle finger, that is, toward the ring finger; there were no other marks on the body. Head, brain, and membrane, the vessels were distended and filled with fluid blood, otherwise normal; chest and abdomen: no abnormal condition in abdomen; chest, the pleural cavities normal; the pericardium normal; heart, a small ecchymosis under the visceral layer of the pericardium, otherwise normal; cavities distended with very dark fluid blood; 3796
aorta beginning aheroma; lung, markedly congested with entirely onoxygenated blood; abdomen, spleen normal size, hard from congestion; kidneys, right, hard and congested; left in same condition; liver normal; stomach, slight submucous congestion; bladder, normal. I gave the different portions of the body to Dr. Matzinger to examine with a microscope.

Q. Is the doctor here in Buffalo?

A. He is the second physician at the State Insane Asylum. 3797

Q. What was the cause of this man's death, as near as you could arrive at it?

A. The cause of death was alteration due to electricity.

Q. Have you made a study of the effect of an electrical current?

A. Not in lental doses or anything of that sort; I simply use it in medicinal doses.

Q. Is it an accepted fact in your profession that a 3798
current of electricity strong enough to produce death will turn the blood into a fluid condition?

A. Yes, sir; that is what is taught in works on physiology.

Q. Did you see any other evidences of death in the individual except what you have ascertained, that he had received a shock of electricity?

A. Nothing except the fluid condition of the blood and the slight ecchymosis underneath the visceral

3799 layer of the pericardium of the heart, but those would not be enough to cause death in and of themselves.

Q. Did you attempt to trace the current?

A. I gave Dr. Matzinger portions of the muscles of both arms and they were examined by him.

Q. Did you attempt to do it yourself?

A. No, sir; there was no way of tracing it, nor any marks of death, outside of the blood—the condition of the blood.

3800 Q. How long after the alleged shock was it that you made the autopsy?

A. I don't know, exactly. I think it was within eighteen hours, but I am not positive.

Q. Sometime afterward?

A. Yes, sir. It was fully six hours afterward, and I think it was between six and twelve; it was certainly within eighteen hours.

3801 *Cross-examination* by Mr. Cockran:

Q. Where was the body when you got it?

A. In the morgue.

Q. Was it on ice?

A. It was in the ice-box. I don't think there was any ice there because it was in winter time.

Q. Suppose you hadn't heard that this man had been struck by a current of electricity, was there anything in that body that would show the cause of

3802 death?

A. Simply the fluid condition of the blood; that would make me suspect it from the teachings I have received.

Q. Would you have been able to describe the cause of death in the absence of any other information, after an examination of the body?

A. On account of the condition of the blood I should say that was a suspicious circumstance.

Q. It would be nothing more than a suspicion?

A. It would be simply an idea, by personal experience I could not tell: but from the teachings I have received that is a point in electrical death, and as far as we know it does not occur in any other death. 3803.

Q. Would that account for the death itself?

A. The fluid condition of the blood is simply this, that some change has occurred in the blood, but what it is is not positively known. Whether it would be necessarily fatal in itself I do not know, but it probably would from the fact that there is a change, because in its normal condition it has certain fibre and forming elements in it, and when brought to a standstill will cause coagulation in a certain time. 3804

Q. There has been no examination made by physiologists that enables them to say positively and definitely what the effect of that change would be?

A. As far as I know they have not.

Q. You have described in some medical terms the burning of the hand; I would rather you would tell me in plain English. Was the skin burned? 3805.

A. No, sir; the superficial layer of the skin, the epidermis, was burned, and of course the epidermis is very much thicker on the palms of the hands than it is elsewhere, and thicker than it is on the back of the hand where the wire was said to have been. It was simply the epidermis that was destroyed.

Q. You could not tell what the cause of death was, yourself?

A. I could give a cause of death. I gave a cause of death. 3806

Q. That you gave from the information you received?

A. Simply from the condition of the blood I could not positively say it was, except from the teachings I have received.

Q. You assume that to be so?

A. I assume that to be so.

It is stipulated that the evidence given by Charles

3807 Westcott at the Coroner's inquest may be read with the same force and effect as given here by the witness:

Read by Mr. Quinby:

"CHARLES WESCOTT, being duly sworn, says: I reside corner of Michigan and Eagle Streets. I was standing on my door steps about to enter my house: I heard a boy cry close by: I turned around and went on the sidewalk: I saw a man coming up Michigan
3808 Street: I saw him make an attempt to do something: he halloaed and fell: the next thing I saw was a wire hanging from a telegraph pole. I stepped into the water where the wire was lying and felt a light shock of electricity. When I stepped into the water my intention was to help the man that fell. I did not get close enough to the man that fell to tell whether he was a colored man or not. I did not assist in carrying him into the drug store. I saw the horse lying on the
3809 street hitched to a sleigh. I saw fire on the second or third cross-bar on the telegraph pole, that led me to believe that the horse was knocked down by electricity and was the cause of injuring the man. The ambulance was summoned. The man was carried from the drug store and placed in the ambulance. I saw the driver of the ambulance a few minutes after; he told me the man was dead; the next place that I saw the man that was injured was at the morgue. When I got to the place where the man was injured the wire was
3810 in the gutter, and there was some water in the gutter. I cannot say whether it was a telephone or electric wire.

(Signed.) C. W. WESTCOTT."

It was then agreed that the man referred to in the testimony of the witness Westcott is the same man sworn to by Dr. Rochester.

The testimony of Charles Hayner, taken before Joseph Fowler, Coroner, was read under the same stipulations as the testimony of Westcott:

"CHARLES HAYNER, being duly sworn, deposes and 3811
says: I live at 63 Kentucky Street, in the City of Buffalo. I am night watchman in the Union Ship Yard. Last Sunday night I was in the electric-light station: it was about 9 o'clock: Smith was in there when I went in. He showed signs of drinking, although he did not stagger about; when I saw him he was playing with one of his fingers on the brushes; he was going so far with it that Mr. Chaffee got up and told him not
to be bothering about that instrument, saying, also, 3812
'If you happen to get hold of something else with the other hand it would be instant death to you.' Finally he urged him to let it alone. Mr. Chaffee turned around to put some oil on the brushes in some part of the generator, and while he was doing so Smith seized hold of one brush with his right hand; Mr. Chaffee noticed this and went to get to him, but before he could reach him he seized hold of the left-hand brush with the other hand. When he got hold of him he
could not remove him, and then holloaed to the 3813
engineer, 'George, shut down,' as hard as he could halloa. Before shutting down I jumped and caught him under the two arms and tried to haul him off and I could not move him any more than I could move a house. As soon as the engine stopped I pulled him away from it and took him out doors and laid him down. He then groaned four or five times. I could not feel any pulse beating.

(Signed.) CHARLES F. HAYNER." 3814

DR. JOSEPH FOWLER, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. You live in Buffalo?
A. Yes, sir.
Q. And you are a practicing physician and surgeon?
A. Yes, sir.

3815 Q. In 1881, were you one of the coroners of Erie County?

A. Yes, sir.

Q. Do you remember the death of Samuel W. Smith?

A. Lemuel W. Smith.

Q. Did you conduct the inquest?

A. I did.

Q. Where was Smith when you first saw him?

A. At Rodney's morgue, I think.

3816 Q. You didn't see him at the time and place where he was killed?

A. I don't think I did.

Q. Did you make any autopsy yourself or any examination of the body?

A. I did.

Q. How long after the accident?

A. The following day.

Q. Do you remember the day of the week it was on

3817 which he was killed?

A. No, sir.

Q. What did you discover, if anything, in your examination?

A. I was present when the autopsy was made and subsequently I made an examination, or further autopsy, on my own account.

Q. What did you do?

A. I saw the brain exposed and also the thoracic viscera and also the abdominal viscera.

3818 Q. Did you discover any burning of the hands or any cutting?

A. I have no distinct recollection now as to whether there was or not.

Q. Did you attempt to trace the current of electricity in any way?

A. I did.

Q. What did you do, and what did you discover?

A. I removed the integument from a point down

on the arms extending across the chest to the opposite 3819
arm, and removed it that I might dissect out the course which I thought the current had taken. I discovered that in a line from one shoulder to the other the tissue was a little darkened for a distance varying from two to three inches in width, a little wider as it approached the sternum than it was near the arms.

Q. Was there any indication upon the surface of the body or the skin itself?

A. I was able to mark out the line before dissecting 3820
it.

Q. What was its appearance?

A. The tissue was a little darkened; a little darker than the tissue upon either side.

Q. What we would term a black and blue spot?

A. Yes, sir; in a degree.

Q. How deep did it extend into the chest?

A. It involved the pectoral muscles.

Q. Did you discover any other course that the
electric current had taken? 3821

A. I did not.

Q. Did you notice the heart?

A. I did.

Q. What was its appearance?

A. I don't remember that there was anything abnormal about it.

Q. About the blood itself—did you notice any peculiarity?

A. Nothing, except that it was more fluid and 3822
seemed to be thinner than usual.

Q. Is that the first case of electrical death that you ever had?

A. Yes, sir.

Q. Have you made any experiments with electricity?

A. I have not.

Q. What was this man's age, should you think; Smith?

3823 A. I don't remember. He was a young man, probably between 24 and 28 years of age; somewhere along there.

Q. And what size?

A. He was a man that would weigh about 160 pounds.

Q. Do you remember his height?

A. I don't remember, he was not a tall man.

3824 *Cross examination* by Mr. Cockran:—

Q. This was the first case you had that you supposed the death to be due to an electric shock?

A. I said it was the first case that came under my observation, and not the first I ever heard of.

Q. You made as careful an examination of the case, or of the body, as I suppose is usual in a novel case like this?

3825 A. Yes, sir.

Q. It was a case in which you took a great deal of interest?

A. I took a little more interest in it than usual; that is why I went back.

Q. After you had completed the examination of the body, the cause of the death was still a phenomena?

A. There was no apparent cause of death.

Q. This peculiarity of the blood would not account for death itself? 3826

A. I think not.

Q. You found a line drawn, or appearing, upon the the skin?

A. He was of light complexion and his skin was very transparent, and I could see the line through the integument at different points.

Q. Was it a continuous line or a broken line?

A. Well, it could be made out, the margin, quite distinctly.

Q. You have made a gesture which might indicate that it terminated here? (Indicates.) 3827

A. It extended completely across from one shoulder to the other.

Q. Did it run down the arms?

A. I don't recollect now whether it did or not.

Q. Suppose that you had discovered that body in a field and knew nothing about the cause of death and you proceeded with your autopsy, would you be able to state what caused death? 3828

A. I presume not.

Q. It would be a puzzle?

A. I would not, if there was no more evidence produced than was present in this case.

Q. I am taking this precise case. I am asking you to assume, if you can, if you had heard nothing about the causes that were supposed to lead to the death, and found the body in a field and you took it to your operating room and dissected it, and cut it open and performed an autopsy upon it, could you from that, in the absence of any other information form any opinion as to what caused the death? 3829

A. Probably not.

Q. So that it would be a phenomena to you?

A. It would.

Q. And, like gentlemen of your profession, when you cannot understand from your own observation, you take evidence or information from the outside that helps you to form your judgment? 3830

A. Yes, sir.

Q. And you attributed this death to electricity because you have not got any other causes?

A. The circumstances attending his death had much to do in reaching the conclusion as to the cause of death.

Q. And you were not able to tell from the body itself; it was a phenomena?

A. Yes, sir.

3831 Q. So you attributed death to electricity because of the statements you received from bystanders; from that you concluded that that must be the cause of death?

A. That was the basis upon which my opinion was founded.

HERBERT C. ALDRICH, called and sworn on behalf of the People, examined by Mr. Quinby, testified 3832 as follows:

Q. Where do you live?

A. 108 William Street.

Q. What was your business in February, 1888?

A. Foreman for the Bell Telephone Company.

Q. Did you hear about this negro being killed out there?

A. I saw it in print, in the newspapers.

3833 Q. Did you go out there?

A. Yes, sir.

Q. What time in the morning did you go?

A. I guess about 9 o'clock.

Q. Where did you go?

A. On Michigan Street, I think the corner of Eagle.

Q. What did you find there?

A. I found a dead horse there.

Q. Lying in the street?

3834 A. Yes, sir.

Q. Did you hear a man had been killed there?

A. I read it in the newspaper. That was the reason of my visit up there.

Q. What condition did you find the telephone wires in?

A. Well, what we supposed was a telephone wire, I found a piece lying on the street and a piece on the electric light pole cut off.

Q. Is there an electric light running through Eagle and Michigan Streets?

A. Michigan Street. 3835

Q. That is a line that is used for lighting the street?

A. No, I think it is an incandescent-light wire, for incandescent purposes.

Q. Do you know whose line it was?

A. It was a Brush electric-light pole and I suppose it belongs to them.

Q. That was the only company at that time doing business in Buffalo?

A. No, sir. 3836

Q. An electric light business?

A. I think there were two companies besides that.

Q. The Thomson-Houston Company, were they in existence at that time?

A. I think so, but I would not be positive.

Q. You understood these to be the Brush electric-light wires?

A. Yes, sir.

Q. How long a piece of wire did you find in the street? 3837

A. I don't know; a short piece, perhaps five or six feet long.

Q. Do you know where it came from?

A. I suppose it was cut down off the electric-light pole, judging from the appearance of things.

Q. Was there any portion of the telephone wire on the electric-light wire when you got there?

A. No, sir.

Q. How large a wire was this? 3838

A. It was about a fourteen gauge wire, a sixteenth of an inch wire in diameter, I should judge.

Q. Was it a new wire or not?

A. No, sir; an old wire.

Q. And rusted somewhat?

A. A little bit.

Q. Had the telephone wire been replaced when you got there?

A. It had not.

3839 Q. You say the telephone wire; that had an appearance of being broken?

A. Yes, sir. There was an end up in a tree and an end on the electric-light pole, where it had been broken apparently, and the other end across the street in a tree.

Q. Do you know where this telephone wire ran from?

A. It was supposed to run from a house on Michigan Street; there was nothing attached to it—it was what we call a dead wire. 3840

Q. Do you know what kind of an electric-light wire this was?

A. A copper wire.

Q. Do you know what light it furnished?

A. The incandescent light.

Q. What kind of a morning was this; had it been raining?

A. Yes, sir.

3841 Q. And the ground was wet?

A. Yes, sir; water standing in the street, and there was also snow and slush.

Q. Did you see the horse attached to the wagon when you got there?

A. No, sir.

Q. Was the horse on the wire?

A. I don't remember whether it was or not. The horse was lying on his side.

3842 Q. Was there any wire under the horse?

A. This piece I spoke of was twisted around his head or near his head.

Q. He was in contact with this telephone wire spoken of?

A. Yes, sir.

By Mr. Cockran:

Q. Did you see where the boy was?

A. I did not see the boy.

Q. Or did you see the colored man? 3843

A. I did not.

Q. Had he been removed before you got there?

A. Yes, sir.

By Mr. Quinby:

Q. The wire that was attached to the horse when you got there had been cut away—had it been cut from above?

A. Yes, sir; apparently. 3844

Q. But there was a piece hanging down that you saw?

A. Yes, sir; about eighteen inches long.

Q. Do you know who cut that wire away from the horse?

A. No, sir; I didn't see it cut.

Q. Do you remember the day of the month this was?

A. I do not. It was Saturday night or Sunday morning. 3845

By Mr. Cockran:

Q. So far as the accident, when you got there all you could see was a dead horse with a piece of wire around his head?

A. Yes, sir.

Q. And that is all you know?

A. That is all I know.

3846

JOSHUA DAVIS, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. Where do you live?

A. No. 11 Fitch Alley.

Q. What was your business in February, 1888?

A. Lineman for the Brush Electric Light Company.

3847 Q. They had a line on Michigan Street?

A. Yes, sir.

Q. Where were their works?

A. Corner of Seventh and Wilkeson Streets.

Q. For what purpose was this Michigan Street line used?

A. Lighting the street, and a private line runs up there for private lights.

Q. Both on the same poles?

3848 A. Yes, sir.

Q. Do you remember this occurrence of this negro being killed?

A. No, sir; I remember hearing of it that night.

Q. You remember such an occurrence. Did you go up there that night?

A. Yes, sir.

Q. What time did you get there?

A. I guess it was about one o'clock.

Q. In the morning?

3849 A. Yes, sir; in the morning.

Q. Do you remember the day of the week it was?

A. No, sir; I do not.

Q. What did you find when you got there?

A. I didn't see—

Q. Did you find the horse in the street?

A. Yes, sir.

Q. Was he attached to the buggy at the time?

A. No, sir; I don't think he was.

3850 Q. Was he dead?

A. He was lying in the street there; I suppose he was dead.

Q. Did he have the appearance of being dead?

A. I couldn't tell whether he was dead or not; I didn't stay there.

Q. Did he move?

A. No, sir.

Q. Was the negro there?

A. No, sir.

Q. He had been taken away before you got there? 3851

A. Yes, sir.

Q. What condition did you find the telephone wire in? Did you see the wire lying in the street?

A. The wire hung down from the pole.

Q. Near the horse?

A. I couldn't tell you. I was sent up the pole to cut it. I didn't look at it.

Q. Who sent you up the pole to cut the telephone wires?

3852

A. Mr. Weber.

Q. What wire did you cut?

A. I cut this iron wire that was hanging down.

Q. The telephone wire?

A. I couldn't tell whether it was the telephone wire.

Q. It was not an electric-light wire?

A. No, sir.

Q. It was some wire?

A. Yes, sir. 3853

Q. About what was its size?

A. About a No. 14; a small wire.

Q. Was it lying across any other wires when you cut it, or in contact with any other wire?

A. I couldn't say. I cut the wire, but I didn't look to see how it lay. It was in the night time.

Q. How far from the electric-light wire did you cut the telephone wire?

A. I climbed up the pole and reached in between the pole and cut this wire. It was hanging down. 3854

Q. Did you notice whether it came to the ground or not? The wire that you cut. Did you cut more than one wire?

A. No, sir; I cut only one wire.

Q. Did the wire fall down on the ground after you cut it?

A. Yes, sir.

Q. Then you came down the pole after you cut the wire?

3855 A. Yes, sir.

Q. What did you observe then, if anything?

A. I didn't examine anything around there; I had another job to go on.

Q. You went right off about your business?

A. Yes, sir.

By the Referee:

Q. Was this wire hanging across the electric-light wire when you cut it? 3856

A. I couldn't swear whether it was across or how it was; I just went up the pole and cut it off.

Q. It was hanging on something or other?

A. I suppose it must have been.

Cross-examination by Mr. Cockran:

Q. How did you come to go there?

A. I was sent up there.

3857 Q. By whom?

A. By Mr. Al. Weber.

Q. And after you got up there you found this horse attached to the end of the wire—or had he been removed?

A. I didn't examine to see whether the wire was around the horse, or where the wire was at all.

Q. What did you do with that part you cut down?

A. I didn't do anything. I left it right there.

3858 Q. About how much wire did you leave lying across the street when you cut it?

A. I couldn't tell how much I left lying across the street; I just cut it off the pole. I reached up and cut it off the pole and it dropped down. I didn't stop to coil the wire or anything of that kind, or see how much wire there was.

Q. Isn't it usual when you cut a wire to gather up what you cut off?

A. Yes, sir; it is.

Q. Why didn't you do it? 3859

A. It was not my wire.

Q. Was there somebody else with you?

A. Yes, sir.

Q. Who was that?

A. Mr. Weber.

By Mr. Quinby:

Q. Was this telephone wire that you cut above the electric-light wire? 3860

A. I think it was; yes, sir.

By Mr. Cockran:

Q. Were you in the employment of the Brush Electric Light Company at that time?

A. Yes, sir.

Q. What kind of current did they use, the alternating or continuous current?

A. I couldn't tell you that. 3861

Q. Don't you know they changed the kind of current they used?

A. Yes, sir.

Q. When did they change the character of the current they used for electric lighting?

A. I don't know anything about it.

Q. I thought you told me a moment ago they changed the character of the current they used?

A. There is an incandescent and arc circuit?

3862

John C. Weber, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. You live in Buffalo?

A. Yes, sir.

Q. What was your business in February, 1888?

A. I was superintendent of the Brush Electric Light Company.

3863 Q. What machine were you using at that time?

A. Both the alternating and Brush.

Q. On this line on Michigan Street, how many lights were there for street purposes?

A. We ran three different circuits. We had both the private lights, street lights and incandescent lights; we had the capacity of two 260-light machines, and the incandescent lights running down that street.

Q. What was the size of these incandescent machines? 3864

A. 650 lights.

Q. Do you know anything about the voltage of these machines?

A. A thousand volts.

Q. That was their maximum capacity?

A. That is what they call it.

Q. Do you know whether they used the full force of the machines that night?

A. No, sir; there might probably have been on that circuit about forty lamps. 3865

Q. What would be the voltage?

A. I don't know exactly; I never figured that out.

Q. Don't you know what voltage would be required for the use of 40 lamps?

A. No, I do not; I never made a study of that at all, theoretically.

Q. You heard about this negro being killed?

A. Yes, sir.

3866 Q. Did you go out?

A. An hour and a half afterward I did.

Q. Did you find a horse lying in the street dead?

A. Yes, sir.

Q. Where was the man?

A. I don't know.

Q. You understood he had been killed there?

A. That is what I heard.

Q. Did you find any wire upon the ground coming down from the electric wires?

A. Yes, sir, coiled down in under the horse. 3867

Q. What wire was that?

A. It was an iron wire of some kind; I should judge it was a telephone wire.

Q. It was not one of the wires used in this electric-lighting circuit?

A. No, sir.

Q. Your wires were all attached above?

A. Yes, sir; this wire had been scattered all around and dragged up and down the street with the street cars. 3868

Q. What size was it?

A. It was 12 or 14 gauge.

Q. Was it a new or old wire?

A. An old wire.

Q. What was the condition of the weather that night?

A. It was one of these wet snows, very wet, mixed with rain and snow, and water on the ground.

Q. Did you notice what the difficulty was with the wire cut down, what it crossed? 3869

A. Yes, sir; it crossed several of our wires.

Q. Which ones?

A. I cannot tell.

Q. You don't know which ones it touched?

A. No, sir.

Q. Did you hear there how this man came to be killed.

A. No, sir. 3870

Q. Did you ascertain at any time how the black man came to meet his death?

A. Only from hearsay.

Q. Was there anybody that saw him touch this?

A. No, sir.

Q. What was the condition of the electric-light wires?

A. Good.

Q. What was the condition of the telephone wire?

A. Bad.

3871 Q. Was the wire somewhat frayed where it broke off?

A. Yes, sir; it must have been by the looks of the end of the wire. Durney and I looked at it.

Q. Where had the wire been broken?

A. It appeared to break off on the left-hand angle going south on Michigan Street toward South Division, running on an angle with the left hand going down, over to a house top from a pole.

3872 Q. Were you sworn before the Coroner?

A. Yes, sir.

Q. Did you testify to this, "I was on the ground and examined our wires and I found one of our wires chaffed?"

A. Yes, sir.

Q. Which wire was that?

A. The Brush wire.

Q. Was it chaffed at the point where the other wires came in contact with it?

3873 A. We will say for about an inch; the vehicles dragged this wire backward and forward; that occurred at the time being.

Q. Did you understand that this man came out there and took this horse by the bit to help him up?

A. Yes, sir: that is what I heard.

Q. Which one of your wires was it that you found the marks as being chaffed, the one that ran in the street or the incandescent light?

3874 A. I did not get up to examine it. It was one of the wires that ran on the pole, but I cannot tell exactly which it was, the incandescent or arc circuit; I did not climb the pole myself to see.

Q. Did you examine it afterward?

A. No, sir: it was not my business to climb poles.

Q. Did you ever ascertain which wire it was?

A. No, sir.

Q. You say you used how many dynamos on this circuit?

A. Three. 3875

Q. Were they all interrupted currents?

A. Two are high tension and one alternating.

Q. Which wire did you use the alternating current on?

A. On No. 6 private.

Q. For the incandescent lights?

A. Yes, sir.

Q. And the other two were what?

A. One public and one private for lighting. 3876

By Mr. Cockran:

Q. They were a continuous current?

A. Yes, sir.

Q. Do you remember this death of Smith down on Ganson Street?

A. That was before my time.

Q. Do you know what kind of a machine they were using at that time? 3877

A. A Brush.

Q. An interrupted current?

A. A direct, straight current.

Q. A pulsating current?

A. No, sir; a high tension Brush current, 40-light machine.

Q. Do you know what voltage they used?

A. No, sir; I do not.

Q. Did they ever change their machines down there from the time they put them in? 3878

A. No, sir; the same machines and also an alternating machine; that is all.

By the Referee:

The witness states it is usually calculated 40 volts to the lamp.

3879 *Cross-examination* by Mr. Cockran:

Q. An alternating-current machine has been added to the resources of your establishment since you became superintendent?

A. Yes, sir.

Q. When did they put in the alternating-current machine?

A. About two years ago.

3880 Q. And at the time Smith met his death it was not used by the Brush Company?

A. Not the Brush Company; it was then the Buffalo Electric Light and Power Company.

Q. It was the same company, under the same roof?

A. Yes, sir.

Q. Did I understand you to say that this wire crossed three or four wires?

A. Yes, sir.

Q. Did it touch them, do you know?

3881 A. It laid across three or four of them. I couldn't tell exactly, but from the way it hung when I got there.

Q. You are a practical electrician?

A. No, sir.

Q. You don't understand anything about it?

A. Only mechanically.

Q. Now, do you know, if a wire crossed three or four wires like that, with different currents running 3882 through them, what kind of a current would it conduct to the object it struck in the street?

A. I should say that one pulsating from the other carries it in the other direction.

Q. It would bring a kind of a compound current on the man—a little of each?

A. It might.

Recess until 2.30 P. M.

Afternoon proceedings: 3883

Dr. George E. Fell, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. You live in Buffalo?

A. I do.

Q. And you are a practicing physician and surgeon? 3884

A. I am.

Q. Of how many years standing?

A. I have been practicing between eight and nine years.

Q. In 1887 did you have occasion to use a current of electricity for the extermination of dogs in this city?

A. I did.

Q. The question of the necessity of getting rid of the dogs, how did that come up in the city; by order of the Board of Health? 3885

A. I am not certain as to that. I understood there was an order from the authorities of the city to exterminate the curs roaming around the street, and the Society for the Prevention of Cruelty to Animals took it up and recommended that electricity be the agent by which they be killed, and I think that was the way, so far as I know.

Q. You don't know that the original movement was instituted by the Board of Health of the city? 3886

A. No, sir; I don't know that personally.

Q. The question came up as to the best way for taking the life of a dog?

A. Yes, sir.

Q. And the recommendation came through the Society for the Prevention of Cruelty to Animals?

A. Yes, sir.

Q. Do you know who the President is?

3887 A. I think that E. A. Rockwell was the President at that time.

Q. That society has been in existence how long?

A. I cannot state.

Q. Some years?

A. Yes, sir: some years.

Q. Did you invent the apparatus or suggest it?

A. No, sir; I did not.

Q. Who did that?

3888 A. I cannot positively state who invented it: I think the men connected with the electric-light works in Buffalo, and probably Dr. Southwick and Col. Rockwood.

Q. Dr. Southwick was one of the members of the Commission appointed by the Legislature in regard to this present act to execute criminals by means of electricity?

A. Yes, sir.

Q. Describe, if you please, the apparatus that was 3889 used in the extermination of the dogs?

A. The apparatus was a box probably eight inches in height, three feet in length, by probably fifteen inches in width, and lined on the inside with zinc, which was connected with one pole of the electric-light wires.

Q. Where was the apparatus erected?

A. The apparatus which was used for the general extermination of dogs was erected in the improvised 3890 dog-pound at old Police Headquarters, on the Terrace.

Q. You say it was connected with the electric-light wire, the Brush wires?

A. Yes, sir.

Q. Had you seen the dynamo they used on that circuit?

A. I presume I have seen it. I have been in the Brush Electric Light Works. I don't know just what dynamo was used, especially in that case.

Q. Do you know how many lights are on that circuit?

A. I do not. 3891

Q. This was done in the daytime?

A. Yes, sir.

Q. It was never done when they were using the wire?

A. The wire was used to produce this current to kill the animals.

Q. They didn't use it for electric-light purposes?

A. I believe not.

Q. Where was the dynamo located? 3892

A. I think it was located at the Brush Electric Light Works. I am not certain whether it was Ganson Street or Wilkeson Street.

Q. Was there anything put in the box?

A. Water.

Q. Was there any solution with the water?

A. I don't know as there was any solution in this case; pure water, I think.

Q. Did they use any salt?

A. I don't know whether they used salt or not; I 3893
cannot state as to that.

Q. You conducted a great many of these yourself?

A. I only conducted two of these experiments myself.

Q. Were you present at the others?

A. I was present when a number of dogs were killed.

Q. What was the number exterminated?

A. I don't know, but there must have been a great 3894
many dogs exterminated; I couldn't say just the number; I think there must have been several hundred.

Q. Did you conduct the first of these experiments?

A. No, sir.

Q. Who did?

A. I think it was under the supervision of Col. Rockwood and the electric-light man, Mr. Weber, I think. I am not positive as to that, but I know he

3895 was associated or connected with the works at one time when I made a similar experiment.

Q. How many experiments did you make?

A. I only made two with the current from the electric-light works and at the dog-pound.

Q. They were all made upon dogs?

A. Yes, sir.

Q. Take the first, where was that?

A. The first one took place at the dog-pound.

3896 Q. Give us a history of that, if you please?

A. I heard they were going to make these experiments upon dogs, and I was interested in knowing the effect of a current upon an animal and knew that it was generally accepted that electricity would kill animals and kill men, and I was desirous of knowing the action upon the heart when exposed to view and in action. I obtained a good-sized dog.

Q. Give us about his size?

A. A dog that probably weighed 50 pounds; I
3897 should say, a fair-sized dog. And I obtained the services of Dr. George H. McMichael and went down to the dog-pound and selected the dog. I had with me my apparatus, my forced respiration apparatus. I performed the operation of tracheotomy and connected the tube with the dog's trachea, having the animal under chloroform narcosis and kept up respiration by the forced respiration method, and we got along very well with it and had the operation all completed and
3898 the heart was acting rhythmically, beating as we ordinarily find it when such operations are made. The dog was then taken, forced respiration being kept up, in this zinc-lined box; he was held up on his feet for a while and then propped up, I think, with sticks. He was unconscious from the chloroform: a copper bit was then placed in the mouth of the dog; we then noticed that the heart was beating rhythmically and everything was working all right. The current was then turned on the dog, and the instant it was turned on the heart ceased to beat.

Q. You could see the heart? 3899

A. Yes, sir; it was exposed to view, and a dozen men saw it, and there was not the least attempt or effort at action from the heart after the electric current had passed through the animal; in fact, all the tissue of the heart was merely a quivering mass of flesh.

Q. Did you try it again?

A. I did not try it again there, because I was satisfied with the demonstration.

Q. You are supposed to be the inventor of the process known as the Fell process, or what is the name? 3900

A. You speak about forced respiration. I was probably the first one to make that operation in the world.

Q. After this turning on of the current, did you try forced respiration?

A. Not in this case.

Q. Did you in any?

A. Yes, sir; the second case occurred at the Brush Electric Light Works on Wilkeson Street. I secured a 3901 dog and I had my assistants with me and we carefully made the operation under chloroform narcosis. I then, with the tube inserted in the neck of the dog, and everything ready for forced respiration, kept it up and passed a current through the dog with the same result as in the first instance, so far as the action of the heart was concerned. Then there was no attempt at respiratory movement. The dog moved once, but there was no further action of the heart, and to insure 3902 action of the heart, if it was possible, I kept up the forced respiration and had the apparatus all in place ready to work. We kept that up for some time, but it had no effect whatever upon the animal; the lungs were inflated just as in natural breathing, but the heart never made another effort to pulsate. That was omitted in the first operation, and on that account I made the second. The second was fully conclusive as to the effects of an electrical current upon the ani-

3903 mal in its sudden production of death, as conclusive as in the first instance.

Q. How many dogs did you see exterminated altogether by this process?

A. I presume I saw ten or twelve dogs killed by electricity: that is, outside of the two I operated upon myself.

Q. Have you made the subject of electricity a study, somewhat?

3904 A. I have not made the subject of electricity a study so far as electric lighting.

Q. I did not mean the mechanical portion, but its workings in regard to animal life?

A. Yes, sir: I have somewhat made a study of the effect of electricity upon the tissues of animals.

Q. Can you tell what was the cause of death in the two cases that you have mentioned, the ceasing of the heart to beat instantly?

A. In my opinion it was caused by the coagula-
3905 tion of the protoplasm of the body through the force of the electrical current.

Q. Have you used electricity in your profession?

A. I have, somewhat.

Q. Upon the tissues?

A. I have.

Q. Mild currents, of course?

A. I have used what to them are both mild and strong currents, but which would be ordinarily called
3906 mild currents.

Q. From what you have read and the experiments you have made upon animal life, what do you say as to whether or not death can be produced in a human being by an electrical current without pain, and instantaneously?

A. My belief is that death can be produced by a sufficiently powerful electrical current in every instance, without any sensation being experienced by the culprit whatever, and to a certainty, so that respiration cannot be produced.

Cross-examination by Mr. Cockran: 3907

Q. What voltage do you think would be certain to cause death in every instance?

Q. You are asking my opinion only.

A. No: if you don't know, tell me. I am asking you now if you are speaking from knowledge?

A. There is some difficulty arises right here; that is a question I deem that no one can answer that has not experimented on a human being. 3908

Q. That is your answer—that nobody could answer that that has not experimented on a human being—what voltage would cause death in every instance—I understand that the question cannot be answered in the absence of experiments upon human beings?

A. I could answer and give my opinion as to what voltage I think, but that is all I can give.

Q. If you will tell me it is a question to which no definite answer can be given, in the absence of experiments upon the human body, I will stop right 3909 there?

A. I think it has been answered so frequently by accidental cases that that can be stated by any one.

Q. Do you undertake to say that, from any cause, it can be stated that the voltage that will kill every human being can be stated clearly and definitely as a matter of knowledge?

A. I believe it is safe to assume it can be.

Q. I am not asking you that; an assumption comes 3910 in there: you must know the difference between a demonstrated fact and a question of speculation?

A. Yes, sir.

Q. Please consider every one of my questions are as to your knowledge and not to your belief. You understand that knowledge excludes assumptions?

A. Assumptions from facts?

Q. It excludes assumptions; and I ask you the question: Can you tell what voltage would kill any

3911 human being—every human being to which it would be applied?

A. I don't know exactly how that can be answered. I have my belief, of course; but when you come right down to it, you can't answer that unless you had made an experiment that produced death upon a human being by electrical means.

Q. And in the absence of such an experiment no definite knowledge is possessed upon the subject: in the absence of such experiments, am I right in stating 3912 that no definite knowledge is possessed upon that subject?

A. Yes, sir.

Q. You told Mr. Quinby that you hadn't made any study of electric-lighting currents and such things. Now, you have studied, I believe, the principles, so far as they are known, which govern the demonstration of electrical forces?

A. Yes, sir.

3913 Q. And you know what is a conductor and what is a non-conductor?

A. Yes, sir.

Q. Did you ever see what is known as the electrical eel?

A. I think I have.

Q. And the electrical frog?

A. Yes, sir.

Q. And you know that in touching either of these you get a shock? 3914

A. Yes, sir.

Q. And isn't it a fact that that shock is produced by the fact that the two poles are insulated in the same body, one from the other?

A. Yes, sir.

Q. That is to say that one part of the frog is charged with one kind of electricity, or one pole, and the other part of the frog is charged with the other pole; is not that so?

A. I presume so. 3915

Q. Don't you know it?

A. Yes, sir; I understand; that is, where you have an electric current and you pass it through a body you have a certain amount of resistance which produces an effect which is felt in the passage of that current.

Q. In that same body there can be perfect insulation, so that the current does not meet and pass through it; one pole is insulated from the other?

A. I don't know as I understand exactly what you 3916 are getting at.

Q. Can you tell as to whether the fact that you get a shock from a current with an electric eel or an electric frog, that one pole was insulated from the other in the body, whether there was insulation in the body of the eel or frog?

A. Certainly.

Q. And might not that occur in a human being?

A. I don't think so.

Q. Why not? 3917

A. Because in the human being we have factors which are good electrical conductors.

Q. And haven't you in the frog?

A. Yes, sir; but still in a human being I think if you pass an electrical current, eliminating the question of the frog, you have certain substances which are good conductors or electrodes; for instance, the fluids of the body mingling with the tissues of the body, and we have in that case a conductor which will 3918 carry the current from the positive to the negative pole, as the case might be.

Q. As I understand you to say, you say that you believe it will be impossible to effect insulation in the body itself, because it contains elements or better conductors than the frog or the eel; which are better conductors than the elements which are in the frog or the eel?

A. I consider that the electric eel, you mean the

3919 gymnotus, in that we have strong evidences of an electrical current, but it will not influence a galvanometer by attaching it to the animal.

Q. How about the frog?

A. It would be the same in the frog.

Q. Can you galvanize the frog?

A. Yes, sir. I mean the natural current in the eel we have what appears to be an electrical current which is generated and used by the animal to protect itself. 3920

Q. How about the frog?

A. I don't know as I know so much about the frog.

Q. Are not the elements of the frog's body considered very good conductors?

A. Yes, sir; the elements of the frog are good conductors; take the muscular tissue.

Q. How can you account for that insulation in the body of the frog itself, or can you account for it?

A. The insulation?

3921 Q. Yes. As I understand, you say the fact that you get an electrical shock is an evidence of the fact that there is insulation in the body of the frog itself. Did I understand you correctly in that?

A. I guess we do not understand each other.

Q. Well, then, you know what an electrical frog is?

A. What do you mean? I don't know what you have reference to. In physiological work we speak of 3922 an animal known as the electric eel which has the power of generating a current which is like an electrical current, or whether you mean a mechanical appliance.

Q. Do you know anything about an electrical frog?

A. No, sir; I may know it, but I don't know it under that name.

Q. I will ask you this question then: Do you think it is possible to effect insulation in the body of the frog?

A. You mean the animal? 3923

Q. Yes, the frog?

A. Yes, sir.

Q. So that you would get a shock by coming in contact with it?

A. So that if you placed one pole of a battery on the frog and then take the other pole in your hands.

Q. What I want to know is whether you can insulate one pole from the other in the body of the frog?

A. I don't know as to that. 3924

Q. You do know that water is a very powerful conductor?

A. I know it is.

Q. And you know that saline fluid is a very powerful conductor?

A. Yes, sir.

Q. What would you call ordinary perspiration?

A. Saline.

Q. And it is very highly saline?

A. Yes, sir; you can taste the saline properties in it. 3925

Q. Or if you get it in your eye you can tell, you can feel the influences of the saline fluid?

A. Yes, sir.

Q. And if two poles of an electrical current were made to touch the human body, would not the tendency of the dampness be to bring the current on the outside of the body?

A. No, I think not specially. 3926

Q. We had a case in evidence here in which a man was struck by lightning on the chest and the current, or flame, or whatever it was, the demonstration of power, was forced through the coat and vest and shirt, and passed down his breast and cut a swathe, burning all the hair, and went down over his groin and down his hip and onto his leg and tore all the clothing as it went down into his shoes and tore his shoes, and passed out at the foot, tearing off the shoe, and some of the

3927 experts, Dr. Edson among the rest, testified that he owed his escape probably to the fact that he was wet, that his clothes were wet, and that the current possibly kept on the outside of his body, the dampness making a very powerful conductor; would you agree with that, would that be your conclusion after you heard such a case?

A. That would probably be one point, but I would conclude also that the course of the current was in-
3928 fluenced by the most direct course that it could take to get to the earth; if it was a grounded current that would have some influence.

Q. In that case, and in every case of a stroke by lightning, the same influences would be at work, the same result, to reach the earth, where a man is struck by a thunderbolt?

A. Yes, sir.

Q. And therefore this man's escape would not be a surprise to you, if your rule held good?

3929 A. I don't believe it is possible that an electric stroke may be proceeding to the earth, that man's body may come into the course of it and the full electric-stroke flash pass through that body so as to kill the man, that only a portion of the electricity of the stroke passes into the body, or to the body, and then to the earth.

Q. Could you estimate the force of the blow that struck him?

3930 A. I don't know as I could make any estimate.

Q. You do know that men have been struck by lightning and whose bodies showed very little mark, if any from the lightning; men who have been killed?

A. Yes, sir.

Q. And other cases where they have shown very extensive marks?

A. Yes, sir.

Q. So that the mark of the contact would not shed any light upon the blow?

A. Probably the mark of the contact would indicate greater strength than where there was not any mark of contact. 3931

Q. Suppose you saw a body charred all the way down and saw another body not charred at all; which of the two would you consider received the greater force?

A. I would consider the one that was not charred received probably the lesser stroke.

Q. Suppose a man was not marked and got well and another man charred and died, how would you account for that? 3932

A. Because the main current passed through vital centers in the one instance and in the other instance it did not.

Q. You would simply be speculating on it? You wouldn't know anything about it?

A. I don't know as we would know very much about it; it is a reasonable inference from the conditions. 3933

Q. In other words, you would say that the man who escaped did not get so much as the man who died?

A. In such a case as that it would be—

Q. I will ask you do you know whether the effect of having the body damp, or wet. would be to divert the current on the outside of the body?

A. I know that by having the body wet that we cannot get the current to pass into the body where it would have passed in without being wet very readily. 3934

Q. Your idea then would be in this experiment to be made on Kemmler that he ought to be wet. Do I understand you to say, in this case of this experiment upon Kemmler, you would consider it advisable to have the body wet, or simply the point of contact?

A. Simply the point of contact, the contact with the electro.

Q. Suppose that his body became moist all over, became wet, would not the tendency be to divert the current to the external tissues of his body?

3935 A. I do not think it would affect the course of the current to any extent, because the position of the electros would be such as to cause the current to pass through the vital centers.

Q. We will come to that in a moment. But you will admit that if the body was bathed in perspiration, for instance, it would have the tendency to bring the current on the outside of the body?

A. It might have a slight tendency.

3936 Q. Didn't you tell us that the saline fluids are very highly charged conductors?

A. Yes, sir.

Q. Do you think there is any fluid in the body more saline than ordinary perspiration?

A. Blood is saline.

Q. Do you think there is any fluid in the human body more saline in its character than ordinary perspiration? You say blood; is it more saline?

A. I don't know.

3937 Q. Isn't it less saline?

A. I don't know but it may be less.

Q. And if the saline fluid is the most powerful conductor wouldn't it—

A. I don't state that the saline fluid is the most powerful conductor.

Q. Tell us what is?

A. I mean with reference to the blood, whether perspiration is more saline than blood; I am not prepared to state as to that at this time. 3938

Q. Will you tell us what you regard as the most powerful conductor in the human system?

A. I should look upon the muscular tissue of the body.

Q. That is a more powerful conductor than the blood?

A. No; I think blood is a very good conductor; it is a saline fluid.

Q. We are getting down to the comparative excellence of these conductors: I want to know whether you consider blood a more powerful conductor than the tissues? 3939

A. Yes, sir; I think it is.

Q. Won't you tell us whether you consider that blood is the most powerful conductor in the human system?

A. I think likely that blood is the most powerful.

Q. Is there anything known about it, or is that simply a scientific speculation? 3940

A. It is a scientific speculation in this instance, because I never passed a current through human blood; only in animals.

Q. What do you consider the most powerful resistance that is offered by the human body; what element?

A. We look upon the skin as the element which affords the most resistance to the passage of an electrical current.

Q. Do you know what the resistance of ordinary fat is to the square inch? 3941

A. I do not.

Q. You will agree with me in the statement that fat offers the most powerful resistance of any element in the human body?

A. That may be so.

Q. Tell me something about it? Do you know that is so?

A. Yes, sir. I think it is conceded that it is so; that fat offers considerable resistance. I may say 3942 from personal observation I have not any data. My observations upon a human being and upon animals have been mainly upon muscular tissues.

Q. Did I understand you to say that fat offers the most powerful resistance?

A. I believe it is so stated.

Q. By whom?

A. In works on electricity. I think it is stated that fat offers very great resistance, and that the skin also offers great resistance.

3943 Q. And if the blood be the best conductor, or is considered to be the best conductor, isn't that quality attributed to it, because it is considered a saline fluid?

A. Yes, sir.

Q. And if perspiration be more saline than blood, it would be regarded a still better conductor?

A. Perspiration is presented in a very small proportion.

Q. I ask you now if perspiration, quantity for quantity, is not more powerful as a conductor than blood? 3944

A. I don't know as to that; I cannot answer.

Q. If it be more saline than blood, wouldn't you consider it a better conductor for that reason?

A. Yes, sir.

Q. Did you ever see a man executed?

A. Yes, sir.

Q Did you ever know a man to stand under the gallows without being bathed profusely in perspiration? 3945

A. I cannot say as to that. The only execution I witnessed was the execution of Otto, and he was so covered up I could not tell. I had his hand in mine, but I don't think there was any perspiration at the time he dropped.

Q. Do you say that definitely, or is that a faint recollection?

A. My impression is, there was no perspiration upon the hand when I took it. I am quite positive of that. 3946

Q. You swear to that?

A. Yes, sir.

Q. Do you swear that the rest of his body was equally free from perspiration?

A. No; I couldn't see it.

Q. Have you made that a subject of study as to the physiological condition of a man?

A. No, I have not.

Q. I want to ask you, first, is it not a fact that al-

most every vital organ or important nerve tissue is 3947
shielded in the human body by adipose tissue?

A. Yes, sir; I will admit that in general.

Q. I ask you generally.

A. The brain is not shielded with any great amount of adipose tissue.

Q. In the case of baldheaded men, isn't it a fact that adipose tissue forms upon the scalp under the skin?

A. Yes, sir, to a certain amount, but not a great
amount. 3948

Q. Isn't it a fact that nature compensates for the absence of hair by adipose tissue? Isn't that so as a general rule recognized in your profession?

A. I am not certain as to that at all.

Q. What, never! Do you consider the one which is affected by the electrical current and to which you attribute the stopping of the action of the heart, in death, by electricity?

A. I do not think that any single nerve is influ-
enced in that case. 3949

Q. You think they all come into play?

A. I think that, where the current is sufficiently powerful.

Q. But where the various elements of conductivity are interposed in a current the electrical current seeks the best conductor and operates on that?

A. Not so far as the human body is concerned?

Q. You don't agree with that so far as the human
body is concerned? 3950

A. No, sir. Any powerful electrical stroke is passed to all portions about equally.

Q. You think they all become charged equally, all around, that are interposed in an electrical current?

A. The major portion of the elements are made up of muscular tissue and nerve tissue, which constitutes the greater portion of the body—

Q. And you think that all of these receive about the same amount of electrical current?

3951 A. I think very nearly the same quantity.

Q. Why do you say that?

A. Because I think that an electrical current is not modified in its course through the tissue of the body to any great extent by the variation of these tissues. That is my observation in cases that have been brought to my attention. For instance, I can get a current to pass through a certain portion of the body pretty near as readily as I do another part.

3952 Q. Do you agree with the theory which has been quite extensively mentioned in this inquiry, that an electrical current passing through the human body would seek the elements of the greatest conductivity in that body and operate upon that?

A. I cannot agree that we have any great special conductors in the human body, because the blood is circulating to all the tissues at the same time, and the blood and tissues are one mass, and we have in the muscular tissues blood channels circulating through-
3953 out all the cells composing the structure of that tissue, and you cannot separate them and say the current is going to seek out a course.

Q. Are there not certain blood vessels, for instance the aorta, in which a greater quantity is contained?

A. Yes, sir.

Q. And if blood were the chief conductor the chief circuit would go to the aorta?

A. No, sir; because the tissue is full of blood all the time.

3954 Q. The greatest quantity of blood is in the aorta?

A. Yes, sir.

Q. And, if blood offered the best conductor, then the theory that an electrical current would seek the element of the greatest electrical conductivity—if that was so you would expect to see it take that course?

A. If you could eliminate the blood from the tissue surrounding the aorta you might.

Q. Did you ever see a human being alleged to have been killed by an electrical current?

A. I am not certain. 3955

Q. Have you ever assisted at the autopsy of one?

A. No, sir.

Q. Do you know anything about what the effect of an electrical current would be upon the structure of the human body?

A. I do.

Q. How do you know it?

A. From observations of my own on the human body with an electrical current.

Q. You have made such observations? 3956

A. Yes, sir.

Q. Tell us about them.

A. There are cases where we have treated patients and produced certain effects upon living human tissue by electrical currents, what we term electrolysis, and we find the electrical current has aided in decomposing tissue and the coagulation of albuminoid tissue of the body.

Q. And how has that experiment ever been developed under your observation? 3957

A. I have used a galvanic current upon cases.

Q. Upon what part of the body?

A. Is that necessary?

Q. Yes.

A. Well, for instance, in the case of a stricture of the urethra; of course in the male—

Q. How would you apply the current or where would you put the two poles—to what parts of the body? 3958

A. For instance, I placed the negative pole in the urethra and the positive pole upon the groin, so I then got a current passing through the body; I then got decomposed the albuminous tissue at the negative pole; as evidence of it I have got some here. This was taken from a human being.

Q. Did you see any evidence of the electrical current around the man's chin?

3959 A. No, sir.

Q. Or around the throat?

A. No, sir; I was not working there.

Q. I understood you to say that when an electrical current was introduced into a human body it was permeated throughout the whole body?

A. Yes, sir.

Q. Now, your testimony seems to show that it would not. I asked you how you know that an electrical current will act upon the human body, passing through 3960 from the head to the feet?

A. You asked me before if I knew the action of an electrical current upon portions of the body. I did not understand all its parts.

Q. I ask you now, do you know how a current of electricity passing through the human body will act upon all of the component parts of the body?

A. I think that can be answered in the affirmative to a certain extent; that is, that certain tissue will be coagulated with the current. 3961

Q. If you are able to tell how a current of electricity will act upon the human body; if you know, tell?

A. It will produce death of the tissue.

Q. How is it affected, each separate part in the human body; do you know?

A. It would affect it in different degrees.

Q. You haven't yet told me whether you know or not? 3962

A. From observation upon portions of the body.

Q. I don't want any guesses. If you are able to tell us whether that was brought within the reach of human knowledge, tell us?

A. I believe it is brought within the reach of human knowledge; so far as I am concerned, I can only infer from the observations I have made.

Q. You have made yourself familiar with these autopsies that have been talked of by these gentlemen

who testified, of the men who are supposed to have 3963
died by contact of the electric wires?

A. Yes, sir.

Q. And how each of these gentlemen could not see any reason for death after inspecting it?

A. I have seen that, and I believe it is accepted that the microscope does not show any reason.

Q. Dr. Fowler testified that if he had seen the body in a field and had not known that the man had been in contact with an electric wire he couldn't have 3964
assigned any cause for death. Do you think you would have been more fortunate if you had found the man in a field—would you have been able to assign a cause for death?

A. I don't know as to that.

Q. Suppose you found from the description of the post-mortem examination—you know what that description was, don't you?

A. I don't know as I have read it specially. I have read a description of a post-mortem examination 3965
after the passage of an electrical current, and statements I have heard, and I expect that no definite reason could be obtained from observation.

Q. The reason was that the body didn't show any results?

A. No, sir; observation of a body after death by electricity does not mean that there could not have been ascertained by proper examination of that body as to what the cause of death was, or the fact of the 3966
agent which caused death upon that body, because there is a process of dying which means the coagulation of the tissue, and we have in death coagulation of the protoplasm of the body which prevents the action of the cells from being carried on after that occurs.

Q. Tell us what you mean by protoplasm?

A. It is that which composes the most of the body; it is that material in which life exists in the animal

3967 world, and we call it tissue; it is protoplasm as long as it has a living existence.

Q. When that body was examined the doctor says that there was nothing that would have shown him that death was caused by electricity—I will ask you why, if the effects of electricity upon the human body are known to anybody—couldn't you tell a man had died by electricity?

A. Not necessarily, because the agent which produced death does not leave a mark. 3968

Q. Couldn't you tell from the effect what the cause was?

A. Not necessarily; not at all. You couldn't tell, probably, from the effect of some poison what was the cause of death.

Q. But if you knew how an electric current acted upon the body you could tell then when death ensued from an electric shock?

A. Not necessarily.

3969 Q. If you saw its effect and knew its effect?

A. You may know without being able to say, in some instances.

Q. If you knew the cause that produced death you could state it?

A. Yes, sir.

Q. And if you knew in a certain case what produced that result you would suspect that cause when you saw the result, would you not?

3970 A. Not necessarily, because there are so many factors which can produce death and do not leave any traces, so you can assign a certain cause.

Q. Do you think it is known to anybody what the effect of an electrical current is upon the human body—I mean as to all its tissues and parts?

A. I believe it is known from inference and observation on lower animals and observation upon the body itself.

Q. Don't you know the difference between inference and knowledge?

A. Yes, sir. Still, we have a great deal of knowledge that we have a right to accept as true, derived from observation and really inferential. I was going to state, cannot we for instance obtain knowledge of what causes, from our experience upon lower animals —cannot we arrive at conclusions of what the effect might be on the human kind? 3971

Q. That might or might not be. Let me ask you this—that is the source of your knowledge any way?

A. Yes, sir. 3972

Q. You don't claim to have any other knowledge?

A. I don't claim to have made an observation of the human body.

Q. You have made no observation of the human body, except that you have described, in practicing medicine?

A. That is all.

Q. There have been no experiments made upon the human body to decide how a current operated upon it? 3973

A. I don't know of any having been made.

Q. So your observation is based simply upon the effect on dogs, and from that you have reasoned what the effect probably would be upon the human body?

A. Yes, sir.

Q. Do you think you can tell to-day how many volts would kill a man—take it from your experiments?

A. Yes, sir; I think I could tell. 3974

Q. We will take a dog, for instance, a dog weighing 56 pounds, whose resistance is 3,200 ohms: How many volts would kill him in a minute?

A. You asked me a question, and I will answer as well as I can.

Q. Tell me if you can answer it definitely as a matter of knowledge. You would regard it as a problem that could be worked out?

A. I think a current of say 500 would kill any dog.

3975 Q. Why do you say 500?

A. Simply from my own observation.

Q. You are a scientific man?

A. I don't know.

Q. You have studied and devoted your whole life to science?

A. Yes, sir.

Q. And you know about scientific problems?

A. Yes, sir.

3976 Q. And if I were to give you any ordinary question you would be able, or you would assume that you could, reach a conclusion?

A. Yes, sir.

Q. And might you not apply such rules as these with definiteness and certainty to the voltage that would be necessary to kill a dog?

A. In the absence of data which can be obtained I think it safe to do so.

Q. What can be obtained that is necessary to work 3977 out that problem. I want you to work it out and we will test it?

A. My opinion is—

Q. I am not asking you for your opinion; I am asking you if you can calculate the voltage that will kill any dog. Can that be obtained with definiteness?

A. I can give you a figure, I believe, that will kill any dog or any man living.

Q. Did I ask you that?

3978 A. No; I can't give you any more than an opinion, of course.

Q. That is your answer, that you can't give me any more than an opinion?

A. Yes, sir.

Q. The experiments you have conducted upon dogs didn't inform you how much would be necessary to kill any given dog?

A. But they do.

Q. Inform you of what?

A. They inform me that if I used the same con- 3979
ditions I would kill a dog every time.

Q. Are you sure about that?

A. I am sure.

Q. Is that definitely ascertained, or is that simply a belief of yours?

A. I am satisfied from these experiments.

Q. I didn't ask you that?

A. I base my opinion upon experiments which I
have made, and if I cannot base my opinion upon 3980
anything that has been done in the past I cannot make
any statement at all.

Q. You found the voltage necessary to kill dogs, but you have not experimented enough to know whether it requires more voltage to kill one dog than another?

A. No, sir; because I have not experimented
enough to know that. I have experimented enough
to know the voltage used to kill all the dogs I ever
saw placed in such a position. 3981

Q. You don't know how much would be necessary to kill any given dog now?

A. Only from these experiments, that it would kill any dog living.

Q. How many dogs did you experiment on?

A. Two dogs that I directly operated upon; I have seen others operated upon.

Q. Did all the other dogs die instantaneously?

A. Almost all. 3982

Q. Were there any exceptions?

A. I don't know as there were any exceptions that I saw.

Q. Or that you heard about?

A. I heard of one or two exceptions where the dogs yelled, but I did not see those.

Q. In the case of conducting experiments which would go to the extent of reaching human life, do you think it would be safe as a scientific person to proceed

3983 upon any set of circumstances to which an exception was found?

A. Certainly I do.

Q. Suppose that you found that out of ten dogs one absolutely refused to be killed?

A. I didn't find it.

Q. If you found that one exception would you think the matter had been brought sufficiently far to justify you in applying it to a human being?

3984 A. If out of ten dogs experimented on we could not succeed in killing one, I should say no.

Q. Suppose you heard that in a set of experiments at the Edison laboratory it was found necessary to give one dog a shock with a brick, would you consider the series highly satisfactory?

Mr. Quinby:

I object to that; I don't think the witness need answer. 3985

Q. I mean to say that if you found in a series of experiments that it was necessary to kill one dog with a brick, that could not be killed by an electrical current, would that affect the conclusion you have reached in your own mind?

A. Not necessarily, because it occurred in Edison's laboratory.

Q. This animal that you gave the chloroform to, 3986 you exposed his heart?

A. I gave the chloroform first.

Q. Before the experiment you did?

A. Yes, sir.

Q. Could he have lived with his heart exposed?

A. Respiration probably could have been kept up.

Q. Would it have lived?

A. By forced respiration probably it would.

Q. Without the forced respiration he would have been dead?

A. He would have died from asphyxia in a short 3987 time.

Q. There was no chance of his living when you put him in the box?

A. No.

Q. That was so with the two dogs?

A. Yes, sir.

Q. Suppose that a dog had received an electrical shock and was pronounced dead, and upon cutting him open you found the left ventricle of the heart was 3988 silent and the right auricle of the heart bleeding, would you consider that fact—

A. I do not think you would find such a condition, but if I found such a condition I would say the dog was dead. But I do not concede that condition existed; if it did I would say the dog was dead; the left auricle was not working.

Q. If the right auricle was working and beating, would you think he was dead then, before he had been cut up? 3989

A. I don't believe that condition could exist.

Q. Never mind that; let us assume that it did. Suppose you found the right auricle of the dog's heart beating, would you consider then there was some doubt of his death?

A. Yes, sir; I would consider some doubt of his death.

Q. No matter what happened, and you found him in that way? 3990

A. I would consider the dog was dying and the chances of resuscitation might possibly exist.

Q. What is the name of the chief nerve?

A. The nerve which controls the action of the pneumogastric nerves.

Q. Is that covered with adipose tissues?

A. Some portions of it; generally there is adipose tissue around the vessels of the body.

Q. As a general thing nature protects them with a covering of adipose tissue?

3991 A. Yes, sir.

Q. Do you consider a solution of caustic potash a good electral?

A. I think it may be a good electral; I never used it; it is an alkali, and we use salt, which is alkali.

Q. I show you Relator's Exhibit "F," the machine which is to be used for the purpose of this execution —the machine suggested by Mr. Brown.

By Mr. Poste:

3992 The State does not concede that is the machine that is to be used. If it is thought best, and that this is the best appliance, the State will undoubtedly use it.

Q. Here is a rubber bag, and this rubber bag is filled with a solution of potash and put down over the man's head with a rubber band around it. Can you imagine such a thing?

A. I can imagine it, but I cannot see how it would stay there.

3993 Q. Do you think it would stay in that bag?

A. Not unless it was pressed with a great deal of force.

Q. By any rubber band that could be put around it?

A. I doubt if you could put caustic potash in a liquid form and put it in that bag and have it forced down tight enough.

Q. You think that any rubber band could be made that could keep that from leaking?

3994 A. For a short time.

Q. For a second or two?

A. Yes, sir.

Q. Would not the pressure make it run down over the man's body?

A. Not if a band powerful enough was applied. I think I could get a band that would hold caustic potash.

Q. For how long?

A. Most any length of time. I could put it around and hold it with sufficient tightness.

Q. Suppose that the caustic potash ran down the man's face, what would be the effect? 3995

A. I think it would have but very little influence upon the course of the electricity. Some might follow, but the body would have the effect of the current produced upon it. I believe that if the electro was placed in that position and a powerful current passed to it the body would receive the greater portion of the current.

Q. But if it ran down over his face, would not the current run down with it? 3996

A. Yes, sir.

Q. And wouldn't it burn?

A. I don't know as it would.

Q. Do you think it would be an agreeable feeling?

A. I don't think the man would know anything about it.

Q. Assuming that the man was conscious and survived the stroke—supposing that a current of electricity was passed through him and consciousness survived?

A. Consciousness would not survive if the amount 3997 was sufficiently powerful.

Q. How do you know?

A. From observation.

Q. You don't know whether he would be conscious or unconscious as a matter of fact, assuming that he was not killed, and the electrode or solution ran down his back and sides. Your mind cannot grasp such a situation?

A. Yes, sir; it can. 3998

Q. Assuming that consciousness survived, what would be the effect upon the man?

A. I think the man would be immediately unconscious; he would never know anything about it. That is my opinion.

Q. But assuming such a state of affairs, just to oblige me?

A. With a very powerful electric current I couldn't assume, I couldn't imagine it, whereby a very powerful electric current would have any such effect.

3999 Q. You decline to modify that?

A. Yes, sir.

Q. What became of the general system of exterminating canines by this plan: is it continued in Buffalo?

A. I don't think it is continued. I think there has been no extermination of canines since.

Q. Were those the first experiments ever made, to your knowledge, in that line?

4000 A. Here?

Q. Anywhere?

A. I don't know of any others being made by the same method.

Q. You never heard of any experiments having been made with a current of electricity upon dogs by any of the eminent French authorities?

A. I have heard of them, of their making physiological experiments; they have been made for years upon animals, with weak currents.

4001 Q. They kill dogs here now by gas, don't they?

A. I don't know what their plan is now.

Q. After the experiment by electricity had been made, didn't they take some other means of exterminating them, by gas, or by water—drowning?

A. I have not sufficient knowledge to answer.

Q. Did you say you know of any experiments having been made upon dogs by eminent French authority?

4002 A. I have heard of physiological experiments, but as to any specific experiment I cannot remember.

Q. Did you ever hear of D'Arsonval?

A. I don't know as I have.

Q. You have heard of Brown-Sequard?

A. I have.

Q. And have you heard of any experiments having been made where the dogs were apparently killed and restored by artificial respiration?

A. I don't know.

Q. Actually restored, and allowed to run around? 4003

A. No; I don't know.

Q. If you had known that such eminent authorities as that had experimented on dogs, apparently killed them and restored them, before a college as eminent as that of the College of France, so that the dogs ran around, would that have any effect on your conclusions?

A. It would have.

4004

Re-direct examination by Mr. Quinby:

Q. Are you acquainted with Dr. Southwick?

A. Yes, sir.

Q. He is now in Europe?

A. I believe so.

Q. These results of the application of electricity on dogs was prior to the passage of this Act of the Legislature?

A. They were. 4005

Q. Was he cognizant of those experiments?

A. Yes, sir.

Q. A dog is composed of blood, bone and tissue?

A. Yes, sir.

Q. Is it any different from a human being in the analysis?

A. No, sir; not generally.

Q. So that if a current would pass through the blood of a dog, or the tissue of a dog, you would expect it to pass through the blood and tissue, the same in nature, in the human being? 4006

A. Yes, sir.

Q. And if the heart, which is supposed to be the seat of life, should stop bleeding through the effects of an electrical current, you would naturally expect if it ceased in a dog to cease in a human being?

A. Yes, sir.

Q. You say you were present at the death of Otto?

4007 A. Yes, sir.

Q. He was convicted and sentenced—do you recollect when?

A. I don't recollect the exact date; it was a number of years ago, three or four years ago, and more, possibly.

Q. It was about four years ago he was hung?

A. Yes, sir.

Q. You held his hand?

4008 A. I held his hand; as he dropped down I had his hand in my own.

Q. Do you recollect how long pulsation continued?

A. Some eight minutes, I think, in his case.

Q. His feet were weighted, or tied?

A. They were tied.

Q. Were they weighted?

A. I am not certain, but I think they were. There was no movement of his feet after he dropped.

Q. What causes death in hanging—take where the 4009 neck is broken?

A. The respiration is interfered with and they die of asphyxia; and the blood is not oxygenating.

Q. But as long as you could feel the pulsation in the heart you would not say life was extinct?

A. No, sir.

Q. Did you ever attend the execution of any other person?

A. No, sir.

4010 Q. Where the neck is not broken, life may continue some time?

A. Yes, sir; where the neck is not broken life may continue; and it is possible, in my opinion, to resusitate the patient.

By the Referee:

Q. After the heart has stopped beating?

A. I think it is possible—I know I have brought life to a man—that is, we could not detect any action

of the heart by listening over the chest-wall, and could 4011
not get any action at the wrist; and under those circumstances I have recalled the action of the heart for about an hour.

By Mr. Cockran:

Q. That was not a case of hanging?

A. No, sir; a case of morphine poison.

Q. Would both dogs that you have experimented upon have died, having their hearts exposed? 4012

A. Yes, sir; but their hearts were beating regularly—both had had tracheotomy performed upon them; yes, sir.

Q. So that they were living substantially by the artificial respiration you were giving them?

A. Yes, sir; that is, if we had not kept that up death would have ensued.

Q. Death would have ensued?

A. Yes, sir.

Q. There was no chance for those dogs after you 4013
exposed the heart?

A. No, sir.

The proceedings then adjourned until Thursday, August 1st, at 10 A. M.

Proceedings of Thursday, August 1st, 1889—10 A. M. 4014

Dr. Herman Matzinger, called and sworn on behalf of the People, examined by Mr. Quinby, testified as follows:

Q. You are a physician?

A. Yes, sir.

Q. And you are now at the State Insane Asylum?

A. Yes, sir.

4015 Q. You have had experience with the microscope?

A. I have had some.

Q. Did you make an examination of the tissue and organs of Isaac Molten, a negro, on or about February, 1888, which tissues and organs had been delivered to you by Dr. Rochester?

A. Yes, sir.

Q. Is this the original report that you made as the result of your examination?

4016 A. Yes, sir; except that lead pencil.

Q. The lead pencil on page three?

A. Yes, sir.

Q. You may take that report and refresh your memory. Is that a correct report as it stands—does it show correctly the result of your examination?

A. Yes, sir; aside from that lead pencil.

Q. What is the lead pencil?

A. "Kidneys also distended with blood."

Q. Is that true?

4017 A. I don't remember seeing the kidney tissue.

Q. That is not in your handwriting, is it?

A. No, sir.

Mr. Quinby:

I offer this report in evidence.

(Received in evidence and marked People's Exhibit "E.")

4018 *Cross-examination* by Mr. Cockran:

Q. Was there anything in this microscopic examination which would show the cause of death?

A. No, sir; nothing definite.

Q. Was there anything that would justify you or any physician in assigning any distinct cause of death?

A. No, sir.

People then rested their case.

Relator opens. 4019

Charles F. Durston, called and sworn on behalf of the Relator, examined by Mr. Cockran, testified as follows:

Q. You are the respondent or defendant in this matter?

A. Yes, sir.

Q. Have you, at Auburn, the paraphernalia with which you intend to execute Kemmler? 4020

A. It is nearly complete.

Q. Is it the paraphernalia delivered by Harold P. Brown?

A. Yes, sir: it was purchased by Mr. Brown.

Q. Did you order it yourself?

A. It was ordered by the Superintendent of Prisons, under a contract made by the Superintendent of Prisons by Mr. Brown.

Q. Do you know what that contract was? 4021

Mr. Poste:

I suggest that that contract be put in evidence; we will furnish you with a copy, and the Referee, also a copy certified by the Superintendent.

(It is agreed that the contract be offered in evidence, and certified copies made and furnished by Austin Lathrop to Mr. Cockran and the Referee.) 4022

Q. Was this instrument which was furnished by Mr. Brown the same that was specified in the contract?

A. The contract specifies that he shall furnish a dynamo of the alternating-current system, but it does not state what particular manufacture.

Q. He has furnished a dynamo of that character?

A. Yes, sir: of the Westinghouse Company.

Q. Has he furnished all the other elements of the

4023 apparatus—the Wheatstone bridges, Cardew voltmeters and exciters, and all such things?

A. He has furnished a dynamo, an exciter, two ampere meters, two voltmeters, and wires and switches.

Q. Has he furnished electrodes to be applied to the body?

A. Yes, sir; everything was there with the exception of the lampboard.

Q. What is that?

4024 A. As I understand, that is not called for in the contract, but, as I understand, the lampboard is an attachment that goes on to the wall, that will have 28 or more or less lamps, so that when the dynamo is started up with the exciter the lights will show the current of electricity passing. I should judge the lampboard is simply to indicate that the exciter and the dynamo are furnishing electricity through the wires.

Q. Is that the machine you intend to use for the

4025 execution of Kemmler?

A. If it works right.

Q. How are you going to decide whether it will work right?

A. That, of course, would have to be determined, whether or not it furnished a current of electricity.

Q. I mean, so far as you have made up your mind, have you concluded what kind of an instrument you will use to execute this man?

4026 A. I will say that this instrument has been put into Auburn Prison for that purpose, and, if on a test it proves satisfactory, that it will be used.

Q. Do you mean to test it on Kemmler?

A. No, sir; testing it merely in a scientific way to see whether it furnishes sufficient volts, I suppose.

Q. What kind of a test are you going to make to decide; are you going to subject a human being to that experiment or not?

A. I don't intend to make any test upon a human

being. What I wish to say by making a test; of course 4027
it would be very foolish to wait until the day arrives
for the execution of Kemmler before we started up the
dynamo and the exciter to see whether it furnished a
sufficient current.

Q. You know you cannot execute him without using that or some machinery?

A. Yes, sir.

Q. And is this the machinery intended to use?

A. At the present; yes, sir. That is the determin- 4028
ation at present.

Q. And, that failing, then you would have no idea what you would use, assuming that you discard this?

A. If this should not prove to be what the contract calls for, as an official I should be seeking about to find that which would furnish sufficient volts.

Q. I don't understand as to what your idea of excellence is; what your idea of efficiency is. How are you going to test the efficiency of the instrument be-
fore testing it on Kemmler? 4029

A. In no way whatever.

Q. So that, in point of fact, your first test will be the application to Kemmler?

A. Yes, sir.

By Mr. Poste:

Q. Has the State actually accepted this dynamo?

A. No, sir; it has not. 4030

Q. Please give us an account of the status of matters in that regard?

A. With reference to the contract, Mr. Brown agrees, as one of the parties to the contract, to furnish an electrical apparatus of the alternating-current system for this purpose. I would not say positively, but I rather have the impression that the contract states what in substance this electrical apparatus shall produce in the way of volts, I think.

4031 Q. How about the amperes—do you remember on that point, whether the contract states that?

A. I don't remember as to that.

Q. You stated, I think, that the lampboard was not included in that contract?

A. No, sir. But that is merely, as I say, to show that the current is flowing; if you started up your dynamo and exciter, why of course you want to know that the electricity is flowing over the wires; if the wires were cut or not working, I should say there would be no light on the lampboard. 4032

Q. You understand the lampboard is simply an additional precaution?

A. Yes, sir. All of the apparatus has arrived with the exception of that, and the wires are placed in position.

Q. But no test has as yet been made?

A. Not of this apparatus.

Q. Nor has it been in any way operated?

4033 A. No, sir; it has never been started up.

By Mr. Cockran:

Q. What kind of electrodes are furnished to that concern. You can tell an electrode when you see it?

A. Yes, sir.

Q. What kind of an electrode is furnished with this machine?

A. Mr. Cockran, I must say, in reference to that, that the electrodes only arrived, I think, on last Saturday; they were merely in the box, and I made no examination of them whatever. 4034

Q. Are they metal electrodes; pieces of metal?

A. I couldn't say as to that; they are part metal, but I merely know that the box contained electrodes.

Q. You don't know whether it has been opened?

A. Yes, sir.

Q. You haven't seen them?

A. I have not taken them out of the box and made any examination whatever.

Q. And you can't even give us an outline of what 4035
they look like?

A. No, sir; none whatever.

Q. Or what they are made of?

A. No, sir. It was a passing remark at the time that it contained electrodes. That is all. I left that rather for Mr. Brown or his electrician to take charge of and I made no examination whatever.

Q. That suggests this question: Is Mr. Brown to conduct the execution? 4036

A. Not necessarily so.

Q. Is that not a part of the contract?

A. The contract provided, between Mr. Brown and the Superintendent of Prisons, that Mr. Brown was to superintend the first execution, providing it took place within a certain period of time from the time this contract was made. The contract was made before Kemmler was sentenced.

Q. Under the terms of the contract, it was provided
that Mr. Brown be the executioner, or the chief func- 4037
tionary of the execution, if it occurred between this and the first of January?

A. I think the period of time did not run as long as that. I rather think the time has expired.

Q. Under the original contract, Mr. Brown was to apply the current himself?

A. It does not say that; but it says, I think, that he was; the contract speaks for itself. He agreed to
superintend the putting of it in place and putting it in 4038
operation, but nothing is said as to who shall touch the button. I suppose the law rather relies upon me for that.

Q. Would you understand anything about electrical currents?

A. Nothing whatever, any more than the usual newspaper reader.

Q. But the direction of the sentence is to pass a current of electricity through the person's body and

4039 continue it until he is dead; that direction conveys no meaning to you of any definite application or any force that you understand, does it?

A. In reference to that, of course I stand in about the same position as the rest of mankind.

Q. You know about the same as the general multitude of mankind and a little more than the experts?

A. I hardly assume to make such a statement.

Q. As a matter of fact the direction of that sentence, 4040 the reading of the statute, conveys to you no definite meaning that you can understand; it does not describe to you any force with which you are familiar, or any application of that force, which you of yourself know?

A. No, sir; not as a scientist.

Q. In any sense?

A. I would hardly agree with you there.

Q. Would you understand it to any extent?

A. No, sir; not in a scientific way. Merely as an application, of course, from the wire, of electricity passing 4041 through it, the same, perhaps, on the same principle as you take it from the ordinary position battery, I take it.

Q. That is your belief about it?

A. I only speak of it—

Q. Just as a matter of belief?

A. Yes, sir.

Q. It is not a fact, or does not come from any knowledge on the subject?

4042 A. Not at all.

By Mr. Poste:

Q. Have you, as a matter of fact, determined upon what kind of electrodes shall be used, and the manner in which they shall be applied?

A. No, sir; not at all.

By Mr. Cockran:

Q. Are you going to use the electros furnished by Mr. Brown?

A. I expect to use such appliances as are furnished by Mr. Brown, unless it should be determined between now and that time that other means or some other system of electros, or applying the electricity, should be adopted. That is a matter still open. 4043

Q. Who will decide that? Suppose that Mr. Brown came along with a new electro and somebody else came along with another, and four or five different kinds were presented to you, who would ultimately decide which you would adopt?

A. I should rather judge from the language of the Code that that would be a matter for me to determine. I do not see that the law recognizes anybody else in the matter of the execution. 4044

Q. You do not recognize Mr. Brown as the official executioner?

A. No, sir; I recognize, first the warden, and in his absence the principal keeper, and in the absence of such officials it then devolves upon the Superintendent of Prisons to designate somebody. 4045

Q. And you don't recognize Mr. Brown, other than as a pure volunteer?

A. No, sir; I do not regard him as a volunteer exactly. I regard him as an individual who is to be paid for his electrical knowledge, and for the information he may give to the official who shall have the matter in charge.

Q. You mean to say he is a man whom you may employ?

A. He has been employed. 4046

Q. But, as I understand, the term of his employment has expired?

A. No, sir; not in the sense—of course he is to furnish this apparatus—from my recollection of the terms of the contract, there was a specified time, that he was to superintend the putting in position of the apparatus and getting it ready for execution, and, providing the execution should occur within a certain period

4047 of time, he should superintend that. It is a question of pay; he did not wish to wait forever for his pay.

Q. You think it is a question of pay rather than scientific investigation?

A. No, sir.

Q. In your description of this state of affairs, I should understand from it that Mr. Brown had contracted to take charge of the first execution, providing it occurs in a given time, and the time having elapsed

4048 you would regard Mr. Brown as free from performing the execution?

A. I will not say it has elapsed; I will say the period of time is pretty well run.

Q. Assuming it had elapsed, would you still regard Mr. Brown as the person who would have charge of the experiment or the execution, whatever you might call it?

A. I don't think he would be under any obligation beyond placing it in position—the apparatus—and get-

4049 ting it ready to be operated.

Q. So all you would have to do is to press the button?

A. Yes, sir.

Q. You understand or consider he is bound to do that under the contract as it stands?

A. Yes, sir; he is not to be paid until he does that.

Q. Supposing the apparatus should turn out a failure and the man should be severely tortured, and the

4050 execution should take quite a while, and the man should ultimately die by convulsions or mummification, as Mr. Edison has said that would be the case, would Mr. Brown still be entitled to his pay?

A. Oh, yes.

Q. He is paid for the job?

A. He is paid solely for the apparatus and putting it in position, and the superintending it—in a measure the getting it in shape—and providing the execution should occur before a certain time, he agrees to see that it is to be in working order and he is to be the electrician to see that the apparatus is in working order at the time the execution should occur. 4051

Q. The excellence of the instrument and its ability to carry out the execution rapidly and promptly has nothing to do with his pay. He gets his pay anyhow?

A. He gets his pay, as I understand it, when it is in position, and when he has lived up to the terms of the contract by purchasing a dynamo and the apparatus connected with it that will produce a certain number of volts. 4052

Q. That is utterly regardless of its effect upon the criminal?

A. Yes, sir.

Q. Would you know the instrument if you saw a drawing of it?

A. I would recognize the dynamo.

Q. I mean of the whole thing?

A. I might possibly; I couldn't say as to that.

4053

Paper marked Relator's Exhibit "F" shown witness.

Q. Would you recognize that as about the kind of instrument you intend to use?

A. Of course we have got this in position.

Q. And you have got a chair; have you?

A. Yes, sir.

Q. Just like that?

A. Substantially. A carpenter made it; it is not just like that. 4054

Q. In what does it differ?

A. Well, the chair is more reclining.

Q. It reclines at a greater length?

A. Yes, sir.

Q. Is that the only difference?

A. I would not say that the carpenter—it is sub—

Q. It is substantially the same?

A. Yes, sir.

4055 Q. You have not got any intention of using any other machinery or appliance except those set out in Relator's Exhibit "F?"

A. Not at present.

Q. They are the ones you are at present determined to use?

The Relator here rested their case.

People re-open.

4056

HAROLD P. BROWN, recalled for further examination by Mr. Poste, testified as follows:

Q. I call to your recollection the visit to Mr. Edison's laboratory of Mr. Hatch and the Referee, and where several persons were present while some experiments were made in regard to the resistance of the human body, and ask you to explain under what circumstances those were made. They have been put in 4057 evidence by Mr. Noble on the part of Kemmler?

A. They were made with a view of showing to the Referee and counsel the use of the Wheatstone bridge, and not with a view of getting the minimum electrical resistance of the human body.

Q. State as to the time or the opportunity that was presented for a careful experimentation, under what circumstances the measurements were made?

A. As to time, we were quite hurried in making the measurements; first, one person and then the other 4058 dipped his hands into the solution, but not long enough to have it thoroughly saturate the skin, and the object was to take several measurements and then get over to the station and take the train back.

Q. The time, in fact, was very short?

A. Yes, sir; the time was quite short.

Cross-examination by Mr. Cockran:

Q. What did you go over there for, Mr. Brown?

A. I went because Mr. Becker, the Referee in the case, asked to go out to the laboratory to see the place 4059 where the experiments on dogs described in my testimony had taken place, and also to see the application of the Wheatstone bridge for taking the resistance of the human body.

Q. And you went there as one of the experts, to see that that was properly done?

A. No, sir; I was invited to accompany the party.

Q. Didn't you go there for the purpose of showing, as the result of my examination, the capacity of the 4060 Wheatstone bridge to take resistances?

A. I did not have that in mind.

Q. Was not that discussed in your presence down at the meeting?

A. It was not discussed. Mr. Becker said that he would like to see some measurements made, and I said if he went there he could see some made.

Q. Didn't you go along to make them?

A. No, sir.

Q. Who was to make them? 4061

A. The laboratory authorities.

Q. Did you say, or undertake to say, that the authorities would make them?

A. Yes, sir; I said I would go and ask permission and see if Mr. Becker and the counsel could be accommodated.

Q. You did go?

A. Yes, sir.

Q. And you made the experiments? 4062

A. No, sir.

Q. Who took the measurements?

A. Mr. Lamond.

Q. He took them in your presence?

A. Yes, sir.

Q. Another gentleman was present also?

A. Yes, sir.

Q. Mr. Noble?

A. There were quite a number.

4063 Q. Who was an electrical expert; Mr. Noble?

A. Yes, sir; Mr. Noble was there. I did not know him personally. I did not know that he was an expert or what he was.

Q. The resistances were taken in your presence and in his?

A. Yes, sir.

Q. Did you make any objection that you didn't have proper opportunity to test them?

4064 A. Why, I am not making an objection now.

Q. You are a scientist?

A. To a certain extent; yes.

Q. And anything that impeaches the accuracy of a scientific measurement is a thing that would disturb you to some extent; a thing you would resent?

A. Yes, sir; certainly.

Q. And the measurements, as you described them to-day, were measurements calculated to mislead?

A. Not at all.

4065 Q. Were they reliable?

A. Perfectly.

By Mr. Poste:

Q. Explain your answer, if you have anything to say in regard to it?

A. The measurements simply show the resistance of the human bodies in the circuit and the resistance also of the contacts. And the major part of the resist-
4066 ances might have been reduced if the object of this was to obtain the minimum resistance of the body and the contact. But, as I understood it, the purpose was simply to show how the Wheatstone bridge was operated, so that the reduction of the resistance of the contacts to a minimum received no attention.

Q. Isn't it the fact that several hours, or a few hours only, were at the disposal of the party—perhaps two and a half hours—and that we were escorted all over the laboratory and through all the departments and spent nearly all our time in looking at, or observing, the various operations, and this was at the last minute that we had, in the place where the experiments were made? 4067

A. That is the fact. And furthermore, the engine stopped at twelve o'clock and did not start again until twelve-thirty, and during that time we could have no current to run the electric lamp in the laboratory by which the Wheatstone bridge was illuminated, so that we had to wait in the phonograph room nearly half an hour before we had an opportunity of making the measurements with the Wheatstone bridge, and then we had a limited time at our disposal, in order to catch the train, for we had to drive about a mile to get it. 4068

By Mr. Cockran:

Q. How long were you making these measurements?

A. I should say not more than eight or ten minutes.

Q. How long do you need to make a measurement? 4069

A. To get the minimum resistance, the hands should be saturated in the solution and soak for at least thirty seconds each.

Q. Is there any such thing as minimum resistance?

A. Yes, sir.

Q. Why do you say that?

A. When the epidermis has been thoroughly saturated with conducting liquids the electrical connection thus established between the liquid electrodes and the blood, or the other saline fluids of the body, the resistance of the body and the contacts is reduced to its minimum. 4070

Q. The resistance of the body itself; is there any such thing as minimum resistance of the body?

A. Yes, sir; I think so.

Q. Do you know it?

4071 A. Certainly.

Q. Do you say that now as a matter of knowledge?

A. Yes, sir.

Q. You know that as a matter of knowledge; the resistance of the human body?

A. Yes, sir.

Q. How do you know that?

A. From the fact that the greater amount of surface exposed to the electrode the less the resistance
4072 encounters, and therefore if any area of the body, with the exception of a slight strip of the epidermis, should be subjected to a liquid electrode the minimum resistance would then be obtained.

Q. Would that be the same every day of the week any more than a man's weight would be the same every day of the week—would it be nearly the same as a man's weight?

A. Yes, sir; I think so.

Q. Has that ever been ascertained by experiments?

4073 A. Yes, sir.

Q. It has been ascertained by experiments?

A. Yes, sir.

Q. Give us the experiment, and by whom performed, and where performed; that the same person has shown the same resistance at different intervals, where the application has been the same as you have described?

A. I don't say just the same.

4074 Q. Substantially; as nearly as a man's weight?

A. The measurements put in evidence by Mr. Lamond show that, in my judgment.

Q. That is all you know about it; your answer is based upon that piece of evidence?

A. Yes, sir; and other measurements.

Q. If there is other evidence let us have it?

A. The long list of measurements submitted by Mr. Kennelly, as well as Mr. Lamond; and as well as the fact, of a number of measurements made in my presence, give approximately the same results.

Q. When were they made? 4075

A. The day we were at the laboratory.

Q. Was there such a result shown on that day?

A. Approximately, yes.

Q. Mr. Hatch showed a variation from 1,400 ohms to 8,000; would you call that approximately the same result?

A. No, sir; Mr. Hatch showed 1,370 ohms the first time he put his hands in; if I remember right he put his hands so far in that the solution ran over, and Mr. 4076 Wurt took up the jars and put a strip of board, or something, underneath them; his hands went as far down as his wrists, and the next time his wrists were not down as far as on the first occasion, if I remember rightly, and the result was about 1,800 ohms. And the third time his hands were about as they were at the first trial and gave 1,390 ohms, I think.

Q. When was this question of his hands and the electrode first mentioned?

A. I spoke to him about it at the time, and I called 4077 his attention to the fact. He put his hands away down so that the solution ran over.

Q. Is that the extent of your experimentation upon that subject?

A. The electrical resistance of the human body?

Q. Yes.

A. No.

Q. Go on and give us the whole result of your experiment? 4078

A. I have made a number of measurements of the human resistance which show.

Q. Tell us what they were and where; tell us where the others were?

A. On the first evening that Dr. Peterson and myself were at the Edison laboratory we made a number of measurements of resistance from hand to hand, and from hand to foot, on myself and Dr. Peterson and Mr. Kennelly and several of the laboratory assistants. I

4079 have not a memorandum of those measurements with me.

Q. Did Mr. Kennelly testify to those?

A. I believe they were not mentioned by him, but the day that he and I went over our measurements we found those measurements recorded.

Q. Have you got those now?

A. No, sir; I made no record of them.

Q. Do you know that that has been a question of 4080 scientific research in almost every institution in the world?

A. I don't know about every institution in the world making such tests.

Q. Do you know of any?

A. Simply by hearsay.

Q. Did you ever study the question of the reported experiments that have been made by scientific bodies; yes or no?

A. I do not at the moment remember any defi- 4081 nite series of measurements that I have studied on the subject.

Q. Did you ever study any?

A. Yes, sir; I have.

Q. Did you tell me that you never heard of it when I asked you if these experiments were the first you knew of, which you made yourself?

A. No, sir.

Q. Didn't you tell me you never knew of any 4082 attempt to ascertain the resistance by the Wheatstone bridge?

A. I don't remember any such answer.

Q. You say you have studied up the question and you have become familiar with some writers who have reported their experiments?

A. I have heard of Jolly's measurements and I have read what DeWattville says on the subject, but so far as studying that particular subject in any books is concerned, I have not done it.

Q. Do you think you have solved the question 4083 which has puzzled the European scientists in ascertaining the human resistance?

A. Not that I have; it has been solved.

Q. The experiments that you have described have been the only experiments that you know of?

A. I have made measurements in my house with my family.

Q. Give us the experiments you have performed outside of your family.

A. I have frequently, in testing the resistance of 4084 electric-light plants, had bystanders express a desire to have their resistance taken, and have favored them.

Q. And you think the question which has perplexed Jolly and other eminent German scientists has been solved?

A. Yes, sir; Jolly's method of making measurements with a small set of electrodes, and without registering the pressure upon those electrodes, and without fully describing whether the skin was washed and without 4085 fully describing the thickness of the brain over the metal electrode, left the question so that his results were hardly satisfactory.

Q. You condemn Jolly?

A. No, sir; I say his results were not satisfactory, for this reason: By increasing the pressure on electrodes of that size you can reduce the resistance, and when you use a liquid electrode you cannot increase the pressure.

Q. Didn't you testify distinctly yourself on your 4086 first examination that the longer you kept up the electricity the more the resistance got?

A. Yes, sir.

Q. Didn't you lay down the rule that if the electrical contact was continued for awhile the longer it continued the less became the resistance?

A. Yes, sir; up to the time the minimum was reached.

4087 Q. Did you swear, or do I understand you to swear, that your testimony in the first place was that the resistance would decrease until a minimum resistance was reached?

A. Yes, sir; that is my impression.

Q. Did you mention minimum resistance on your first examination?

A. I don't know whether I used the term minimum resistance, but I used its equivalent.

4088 Q. Did you hear of it in this case until Dr. Sachs used it?

A. I don't know about Dr. Sachs, but I know that some of the experiments of dogs that were brought into my direct testimony; I remember that the resistance after death showed something like one-tenth of the resistance before death.

Q. Do you desire to modify your answer to my question; do you mean to say you ever mentioned the words "minimum resistance," or spoke of the existence of minimum resistance on your first examination? 4089

A. I do not remember that I used the words "minimum resistance."

By Mr. Poste:

Q. You described the way that death would occur by electricity, on your first examination?

A. No, I did not; I gave some of the ways.

Q. You say you did not describe positively how death would occur from electricity on your first examination? 4090

A. No, sir.

By Mr. Cockran:

There is a little hazziness about the case of the negro that was killed, and it has been suggested that we take the testimony of the boy. We have not been able to get him here, and we have agreed that Mr. Hatch and Mr. Quinby take his testimony.

The testimony was then closed, to be argued September 4th, 1889, with the exception of the taking of the testimony of the witness in New York and of the boy here. 4091

It is also agreed that the certified copies of the contract will be furnished by the Superintendent of State Prisons, and the further statement from Dr. Gray.

Also, that the testimony is to be settled and printed here, under the direction of the Referee, and the expense to be borne half by the State and half by Mr. Cockran. 4092

To Honorable Charles C. Dwight: 4093

The petition of Charles S. Hatch respectfully shows that William Kemmler, otherwise called John Hort, is imprisoned or restrained in his liberty at Auburn State Prison, in the City of Auburn, County of Cayuga, State of New York, by Charles F. Durston, Agent and Warden of Auburn State Prison, having charge thereof. That he has not been committed and is not detained by virtue of any judgment, decree, final order, or pro- 4094 cess issued by a court or judge of the United States, in a case where such courts or judges have exclusive jurisdiction under the laws of the United States, or have acquired exclusive jurisdiction by the commencement of legal proceedings in such a court; nor is he committed or detained by virtue of the final judgment or decree of a competent tribunal of civil or criminal jurisdiction, or the final order of such a tribunal made in the special proceedings instituted for any cause except to punish him for a contempt; or by virtue of 4095 an execution or other process issued upon such a judgment, decree or final order that the cause or pretense of the imprisonment or restraint of said William Kemmler, otherwise called John Hort, according to the best knowledge and belief of your petitioner, is that he was indicted by a grand jury of Erie County, for murder in the first degree; that he was tried therefor at a Court of Oyer and Terminer of Erie County, and found guilty thereof by the verdict of a jury on the 10th day 4096 of May, 1889; that thereafter and on the 14th day of May, 1889, he was arraigned in said Court of Oyer and Terminer for sentence; that, contrary to the Constitution of the State of New York and of the United States, and contrary to his objection and exception, duly and timely taken in due form of law, he was sentenced to undergo a cruel and unusual punishment, as appears by a copy of the pretented judgment, warrant or mandate hereto annexed and made a part of this petition, 4097 and marked Exhibit "A," by virtue of which such imprisonment or restraint is claimed to be made; that he is deprived of liberty and threatened with deprivation of life without due process of law, contrary to the Constitution of the State of New York and of the United States, and contrary to his objection and exception thereto, duly and timely taken. The imprisonment is stated to be illegal because it is contrary to the provisions each of said constitutions.

4098 Wherefore your petitioner prays that a habeas corpus issue, directed to said Charles F. Durston, such Agent and Warden as aforesaid, commanding him that he have the body of said William Kemmler, otherwise called John Hort, by him in prison and detained, together with the cause of such imprisonment and detention, before Hon. S. Edwin Day, County Judge of Cayuga County, on the 18th day of June, 1889, at the Court House, at the City of Auburn, in said county, at 10 o'clock of that day.

4099 Dated, the 11th day of June, 1889.

C. S. HATCH,

Petitioner.

STATE OF NEW YORK, }
COUNTY OF ERIE, } ss.

Charles S. Hatch, being duly sworn, says that he is attorney for the defendant and is authorized by said 4100 defendant to make this petition; that he has heard the foregoing petition read and knows the contents thereof, and that he believes it to be true.

CHARLES S. HATCH.

Subscribed and sworn to, before me, }
the 10th day of June, 1889. }

DANIEL C. OATMAN,

Notary Public, in and for Erie County.

EXHIBIT "A." 4101

STATE OF NEW YORK, }
County of Erie. }

The People of the State of New York to the Agent and Warden of Auburn State Prison, greeting:

Whereas, at a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, County of Erie and State of New York, on the 10th day of May, in the year of our Lord one thousand eight 4102 hundred and eighty-nine, and before the Hon. Henry A. Childs, one of the justices of the Supreme Court of the State of New York, presiding, and a jury, William Kemmler, otherwise called John Hort, was convicted of the crime of murder in the first degree, in that he willfully, feloniously and with malice aforethought, and from a deliberate and premeditated design, to effect the death of Matilda Zeigler, otherwise called Matilda Hort, did kill and murder the said Matilda Zeigler, otherwise called Matilda Hort, on the 4103 29th day of March, in the year of our Lord one thousand eight hundred and eighty-nine, at the City of Buffalo, County of Erie, aforesaid, by then and there striking and beating, cutting and wounding her, the said Matilda Zeigler, otherwise called Matilda Hort, in and upon her head with a certain hatchet, axe and sharp instrument, then and there inflicting upon the head of the said Matilda Ziegler, otherwise called Matilda Hort, several mortal wounds, of which said 4104 mortal wounds she, the said Matilda Ziegler, otherwise called Matilda Hort, did, on the thirtieth day of March, in the year of our Lord one thousand eight hundred and eighty-nine, die.

And thereafter, at said term of the Court of Oyer and Terminer, holden at the City and County Hall, in the City of Buffalo, in the County and State aforesaid, on the 14th day of May, in the year of our Lord one thousand eight hundred and eighty-nine, the said William Kemmler, otherwise called John Hort, was duly

4105 brought before the court for sentence, and after due inquiry being made into the circumstances, and there appearing no legal reason why the execution of sentence against the said William Kemmler, otherwise called John Hort, should not be made, the said Court of Oyer and Terminer, holden as aforesaid, did thereupon sentence the said William Kemmler, otherwise called John Hort, to suffer the punishment of death, to be inflicted by the application of electricity, as provided
4106 by the Code of Criminal Procedure of the State of New York, within the week commencing on Monday the 24th day of June, in the year of our Lord one thousand eight hundred and eighty-nine, within the walls of Auburn State Prison, or in the yard or enclosure thereto adjoining, and that in the meantime, he, the said William Kemmler, otherwise called John Hort, be removed to, and until the infliction of said punishment be kept in solitary confinement in said Auburn State Prison.

4107 Now, therefore, you are hereby ordered, commanded and required to execute the said sentence upon him, the said William Kemmler, otherwise called John Hort, upon some day within the week commencing on Monday, the 24th day of June, in the year of our Lord one thousand eight hundred and eighty-nine, and within the walls of Auburn State Prison, or within the yard or enclosure adjoining thereto, by then and there causing to pass through the body of him, the said
4108 William Kemmler, otherwise called John Hort, a current of electricity of sufficient intensity to cause death, and that the application of such current of electricity be continued until he, the said William Kemmler, otherwise called John Hort, be dead.

Given under my hand and the seal of this Court, this 16th day of May, in the year of our Lord one thousand eight hundred and eighty-nine.

{ Clerk's Office of the County of Erie. }
SEAL.

HENRY A. CHILDS,
Justice Supreme Court.

The People of the State of New York, to Charles F. Durston, Agent and Warden of Auburn State Prison: 4109

We command you that you have the body of William Kemmler, otherwise called John Hort, by you imprisoned and detained, as it is said, together with the time and cause of such imprisonment and detension by whatsoever name the said William Kemmler, otherwise called John Hort, is called or charged, before the Hon. S. Edwin Day, County Judge 4110 of Cayuga County, at the Court-House, in the City of Auburn, on the 18th day of June, 1889, at ten o'clock, to do and receive what shall then and there be considered, concerning the said William Kemmler, otherwise called John Hort, and have you then and there this writ:

Witness: Hon. Charles C. Dwight, one of the judges of the Supreme Court, on the 19th day of June, one thousand eight hundred and eighty-nine. 4111

C. A. ORR, *Clerk.*

CHARLES S. HATCH,

Attorney for Defendant.

[ENDORSED.]

I allow the within writ this 11th day of June, 1889. 4112

CHARLES C. DWIGHT,

Justice Supreme Court, S. N. Y.

4113 COUNTY COURT—Cayuga County.

IN THE MATTER OF THE PETITION
OF
CHARLES S. HATCH for a writ of Habeas Corpus to bring the body of WILLIAM KEMMLER, otherwise called JOHN HORT, before the Hon. S. EDWIN DAY, County Judge of Cayuga County.

4114

I, Charles F. Durston, Agent and Warden of Auburn State Prison, to the Writ of Habeas Corpus issued by the Honorable Charles C. Dwight, a Justice of the Supreme Court of the State of New York, on the 11th day of June, 1889, on the petition of Charles S. Hatch, do make the following return:

First—That I am the duly appointed and acting Warden and Agent of Auburn State Prison, and on 4115 the said 11th day of June, 1889, and before the said writ of habeas corpus was served upon and came to me, the said William Kemmler, otherwise called John Hort, was and now is in my custody and detained by me in the State Prison at Auburn, in the State of New York, under and by virtue of a judgment of the Court of Oyer and Terminer of the State of New York, held in and for the County of Erie, on the 14th day of May, 1889, duly convicting the said William Kemmler, otherwise 4116 called John Hort, of murder in the first degree. A true copy of the judgment roll of the aforesaid conviction is hereto attached as a part hereof and marked Exhibit "A."

And said William Kemmler, otherwise called John Hort, is also detained in my custody as such Warden and Agent, under and by virtue of a warrant signed by the Hon. Henry A. Childs, the Justice of the Supreme Court before whom the said William Kemmler, otherwise called John Hort, was, as aforesaid, duly

tried and convicted, and which said warrant was duly 4117
issued in pursuance of the aforesaid conviction and in compliance with the provisions of the Code of Criminal Procedure, relating thereto, a copy of which said warrant is hereto annexed as a part hereof and marked Exhibit "B."

Second—And I, the said Charles F. Durston, Agent and Warden of Auburn State Prison, do make a further return and allege, as I am advised and verily believe to be true, that the said William Kemmler, otherwise 4118
called John Hort, was not sentenced, as hereinbefore set forth, to undergo a cruel and unusual punishment, contrary to the provisions of the Constitution of the State of New York and the Constitution of the United States.

And I do further allege that the said imprisonment and restraint of the said William Kemmler, otherwise called John Hort, and the deprivation of his liberty and the threatened deprivation of life, are not without due process of law and are not contrary to the provisions 4119
of the Constitution of the State of New York or the Constitution of the United States, as alleged in the petition upon which said writ of habeas corpus was granted.

I do further allege, as I am advised, that the said judgment of conviction hereinbefore set forth, and the aforesaid warrant and the punishment and deprivation of liberty and the threatened deprivation of life of the said William Kemmler, otherwise called John Hort, 4120
thereunder, are fully warranted by the provisions of Chapter 489 of the Laws of 1888, which is a valid enactment of the Legislature of the State of New York, and is not in conflict with or in violation of the provisions of the Constitution of the State of New York or the Constitution of the United States.

And I hold the said William Kemmler, otherwise called John Hort, under and by virtue of no other authority than as hereinbefore set forth.

4121 Wherefore, I pray that the aforesaid writ of habeas corpus be dismissed and the said William Kemmler, otherwise called John Hort, be remanded into my custody and that the said judgment of the said Court of Oyer and Terminer and the warrant issued in pursuance thereof, may be duly executed according to their terms and conditions.

Dated, this 25th day of June, 1889.

4122 CHAS. F. DURSTON,
Agent and Warden.

CITY OF AUBURN, CAYUGA COUNTY—SS:

4123 Charles F. Durston, being duly sworn, says that he is the same person described in and who subscribed the foregoing return to the writ of habeas corpus herein, that he has read the foregoing return and knows the contents thereof, and that the same is true of his own knowledge except as to the matters therein alleged to be stated on information and belief, and that as to those matters he believes it to be true.

CHAS. F. DURSTON.

Subscribed and sworn to before me
this 25th day of June, 1889.

4124 JOHN F. AGUE,
Notary Public.

EXHIBIT "A." 4125

COURT OF OYER AND TERMINER,

ERIE COUNTY.

THE PEOPLE OF THE STATE OF NEW YORK,

AGAINST

WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT. 4126

The Grand Jury of the County of Erie by this indictment accuse William Kemmler, otherwise called John Hort, of the crime of murder in the first degree, committed as follows, to wit: That the said William Kemmler, otherwise called John Hort, on the 29th day of March, in the year of our Lord one thousand eight hundred and eighty-nine, at the City of Buffalo, in the County of Erie, aforesaid, with force and arms in and 4127 upon one Matilda Ziegler, otherwise called Matilda Hort, in the peace of the People of the State then and there being, willfully, feloniously and with a deliberate and premeditated design to effect the death of her, the said Matilda Ziegler, otherwise called Matilda Hort, did make an assault; and that the said William Kemmler, otherwise called John Hort, the said Matilda Ziegler, otherwise called Matilda Hort, with a certain hatchet, axe and sharp instrument which he, the said 4128 William Kemmler, otherwise called John Hort, in his hand then and there had and held in and upon the head of her, the said Matilda Ziegler, otherwise called Matilda Hort, then and there willfully and feloniously, and with a deliberate and premeditated design to effect the death of her, the said Matilda Ziegler, otherwise called Matilda Hort, did strike, beat, cut and wound, giving unto her, the said Matilda Ziegler, otherwise called Matilda Hort, then and there with the said

4129 hatchet, axe and sharp instrument aforesaid in and upon the head of her, the said Matilda Ziegler, otherwise called Matilda Hort, several mortal wounds, of which said mortal wounds she, the said Matilda Ziegler, otherwise called Matilda Hort, did at the City of Buffalo and County of Erie aforesaid, from the first day aforesaid, in the year aforesaid, until the thirtieth day of March, in the same year aforesaid, languish, and languishing did live and on the said thirtieth day 4130 of March, in the year aforesaid, the said Matilda Ziegler, otherwise called Matilda Hort, at the City of Buffalo and County of Erie aforesaid, of the said mortal wounds, did die. So the Grand Jury aforesaid, on their oaths aforesaid, do say that the said William Kemmler, otherwise called John Hort, her the said Matilda Ziegler, otherwise called Matilda Hort, in the manner and form and by the means aforesaid, at the City of Buffalo, in the County of Erie aforesaid, on the day and in the year aforesaid, willfully, feloniously 4131 and with a deliberate and premeditated design to effect the death of her, the said Matilda Ziegler, otherwise called Matilda Hort, did kill and murder against the form of the statute in such case made and provided and against the peace of the People of the State of New York and their dignity.

GEO. T. QUINBY,

District Attorney of Erie County.

4132

[ENDORSEMENT.] 4133

Court of Oyer and Terminer.

In and for Erie County.

April Term, 1889.

THE PEOPLE

AGAINST

WILLIAM KEMMLER, otherwise called JOHN HORT.

Indictment for Murder, 1st Degree.

George T. Quinby,
District Attorney.

True bill.

Frederick Rickert,
Foreman.

Arraigned the 8th day of April, 1889.

Plead Not Guilty.

May 14, 1889.

Defendant being asked if he had cause to show why sentence should not be pronounced, answered No, whereupon he was sentenced to suffer the punishment of death to be inflicted by the application of electricity as 4134 provided by law, within the walls of Auburn State Prison, in the enclosure thereof, and within the week commencing on Monday, June 24th, A. D. 1889.

Names of Witnesses before Grand Jury:

Daniel E. Barry.
Dr. H. H. Bingham. 4135
E. S. Reed.
Nellie Roberts.
Asa D. King.
Robert E. Kinney.
D. E. Blackmon.
Thomas Corlett.
John O'Neil.
Hugh McKenney.
Charles H. Spang.
Thos. Martin.
Dennis McMahon. 4136
Thos. McMahon.
Fred'k Tripner.
Henry Kemmler.
John DeBella.
John R. Kenney.

May 6, 7, 8, 9, 1889, Case tried.
May 10, 1889, Verdict—Guilty of Murder in the First Degree.

4137 At a Court of Oyer and Terminer, held at the City and County Hall in the City of Buffalo, in and for the County of Erie, on the 8th day of April, 1889.

Present—Hon. HENRY A. CHILDS, Justice Presiding.

THE PEOPLE
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED
4138 JOHN HORT.

Murder 1st Degree.

Defendant arraigned and pleads not guilty.

"A copy of Minutes of Plea."

CHAS. H. AVERY,
Deputy Clerk.

4139 At a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, in and for the County of Erie, on the 6th day of May, 1889.

Present—HON. HENRY A. CHILDS, Justice Presiding.

THE PEOPLE,
AGAINST
WILLIAM KEMMLER, OTHERWISE CALLED
JOHN HORT.

George T. Quinby,
District Attorney,
A. J. Emery.
Murder, First Degree.
Charles Hatch,
Charles W. Sickmon,
of Counsel.

4140

JURY.

Frank Guenin,
Frederick Lansell,
George Meyer,
Daniel Chadderdon,
C. J. Swyers,
William H. Henshaw,
Jacob Nehrbass,
Hiram Darling,
Jerome Brown,
Hiram Emerson,
August Melius,
John Thuman.

Adjourned to May 7, 1889, 9.30 A. M.

May 7, 1889, 9.30 A. M., trial continued. 4141

PEOPLE'S WITNESSES.

William J. White,
Charles S. Jones, M. D.,
Roswell F. Park, M. D.,
John Kenney,
Thomas G. Corlett,
Asa D. King,
Mary Reed,
Henry H. Bingham, M.D.,
Nettie Roberts,
John O'Neil,
Delevan E. Blackman,
Robert E. Kinne,
Hugh McKenna,
John Devella,
Dennis McMahon,
Thomas McMahon. 4142

Ordered, that Thomas F. Dwyer, physician to Erie County Jail, examine the condition of C. W. Swyers, a juror empanelled to try this case; and that the Sheriff of Erie County furnish such prescription as the physician may in his judgment deem necessary, and that the Clerk furnish the Sheriff with a certified copy of this order.

Adjourned to May 8, 1889, 9.30 A. M. 4143

May 8, 1889, 9.30 A. M., trial continued.

DEFENDANT'S WITNESSES.

Charles H. Spang,
William Kemmler,
Thomas M. Carpenter,
Thomas Martin,
James Moroney,
De D. Joy,
William J. Collins,
George Meyer,
Paul Marshall,
Eugene Gallagher,
Michael O'Laughlin,
Martin Shay,
Jacob Burkhardt, 4144
Patrick Quinn,
Richard Collins.

PLAINTIFF'S WITNESSES.

Mary Reed, recalled,
William Riley,
Melvin Carpenter,
Charles Richardson,
W. C. Townsend,
Charles D. Rogers,
A. E. Makely,
John Gale.

Adjourned to May 9, 1889, 9.30 A. M.

4145 May 9, 1889, 9.30 A. M., trial continued.

DEFENDANT'S WITNESSES.

John Kehoe, John Burkhardt,
T. M. Crothers, M. D.

PEOPLE'S WITNESSES.

William C. Phelps, M. D., William H. Slacer, M. D.

4146 Evidence closed; counsel sum up; Court charge the jury, who retire in custody of two sworn officers to deliberate upon their verdict.

Adjourned to May 10, 1889, at 9.30 A. M.

May 10, 1889, 9.30 A. M., trial continued.

4147 Jury come into Court and say they have not agreed and ask for further instructions from the Court, and after receiving them again retire for further deliberation, and come again into Court and say they find the defendant guilty of murder in the first degree, as charged in the indictment. At request of defendant's attorney, the jury polled, and each juror answering to his name, says he finds the defendant guilty of murder in the first degree, as charged in the indictment.

4148 "A copy minutes of trial."

CHAS. S. AVERY,
Deputy Clerk.

At a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, in and for the County of Erie, on the 14th day of May, 1889. 4149

Present—Hon. Henry A. Childs, Justice Presiding.

THE PEOPLE, AGAINST WILLIAM KEMMLER, OTHERWISE CALLED JOHN HORT.	**Convicted of Murder, First Degree.**

4150

District Attorney George T. Quinby moves sentence upon defendant.

Defendant being asked if he had any legal cause to show why judgment should not now be pronounced against him, saith, No.

The sentence of the Court is that, within the week commencing on Monday, the 24th day of June, one thousand eight hundred and eighty-nine, and within the walls of Auburn State Prison, or within the yard 4151
or enclosure adjoining thereto, the defendant suffer the punishment of death, to be inflicted by the application of electricity, as provided by the Code of Criminal Procedure of the State of New York, and that in the meantime the defendant be removed to, and until the infliction of such punishment, be kept in solitary confinement in said Auburn State Prison.

"Copy minutes of judgment."

CHAS. H. AVERY, 4152
Deputy Clerk.

STATE OF NEW YORK,
ERIE COUNTY CLERK'S OFFICE, } ss.

I, Charles A. Orr, Clerk of said County, do hereby certify, that I have compared the annexed copy of judgment roll and copy endorsements thereon, with an original thereof, and its endorsements, entered and on

4153 file in this office; and find the same to be true transcripts of and from the said originals, and the whole of each thereof.

In witness whereof, I have hereto set [SEAL.] my hand and affixed the seal of said County, at Buffalo, this 22d day of June, 1889.

C. A. ORR,
Clerk.

4154

EXHIBIT "B."

STATE OF NEW YORK, }
COUNTY OF ERIE. }

The People of the State of New York, to the Agent and Warden of the Auburn State Prison, greeting:

4155 Whereas, at a Court of Oyer and Terminer, held at the City and County Hall, in the City of Buffalo, County of Erie and State of New York, on the 10th day of May, in the year of our Lord one thousand eight hundred and eighty-nine, and before the Hon. Henry A. Childs, one of the Justices of the Supreme Court of the State of New York, presiding, and a jury, William Kemmler, otherwise called John Hort, was convicted of the crime of murder in the first degree, in 4156 that he willfully, feloniously and with malice aforethought, and from a deliberate and premeditated design to effect the death of Matilda Ziegler, otherwise called Matilda Hort, did kill and murder the said Matilda Ziegler, otherwise called Matilda Hort, on the 29th day of March, in the year of our Lord one thousand eight hundred and eighty-nine, at the City of Buffalo, County of Erie, aforesaid, by then and there striking, beating, cutting and wounding her the said Matilda Ziegler, otherwise called Matilda Hort, in and

upon her head, with a certain hatchet, axe and sharp 4157
instrument, then and there inflicting upon the head of the said Matilda Ziegler, otherwise called Matilda Hort, several mortal wounds, of which said mortal wounds she, the said Matilda Ziegler, otherwise called Matilda Hort, did on the 30th day of March, in the year of our Lord one thousand eight hundred and eighty-nine, die.

And thereafter, at said term of the Court of Oyer and Terminer, holden at the City and County Hall, in the 4158
City of Buffalo, in the County and State aforesaid, on the 14th day of May, in the year of our Lord one thousand eight hundred and eighty-nine, the said William Kemmler, otherwise called John Hort, was duly brought before the court for sentence, and after due inquiry being made into the circumstances, and there appearing no legal reason why the execution of sentence against the said William Kemmler, otherwise called John Hort, should not be made, the said Court of Oyer and Terminer, holden as aforesaid, did there- 4159
upon sentence the said William Kemmler, otherwise called John Hort, to suffer the punishment of death, to be inflicted by the application of electricity, as provided by the Code of Criminal Procedure of the State of New York, within the week commencing on Monday the 24th day of June, in the year of our Lord one thousand eight hundred and eighty-nine, within the walls of Auburn State Prison, or in the yard or enclosure thereto adjoining, and that in the meantime he, the said 4160
William Kemmler, otherwise called John Hort, be removed to and until the infliction of said punishment be kept in solitary confinement in said Auburn State Prison.

Now, therefore, you are hereby ordered, commanded and required to execute the said sentence upon him, the said William Kemmler, otherwise called John Hort, upon some day within the week commencing on Monday the 24th day of June, in the year of our Lord

4161 one thousand eight hundred and eighty-nine, and within the walls of Auburn State Prison, or within the yard or enclosure adjoining thereto, by then and there causing to pass through the body of him, the said William Kemmler, otherwise called John Hort, a current of electricity of sufficient intensity to cause death, and that the application of such current of electricity be continued until he, the said William Kemmler, otherwise called John Hort, be dead.

4162 Given under my hand and the seal of this Court, this 16th day of May, in the year of our Lord one thousand eight hundred and eighty-nine.

[SEAL.]

HENRY A. CHILDS,

Justice Supreme Court.

4163

Before Hon. S. EDWIN DAY, Cayuga County Judge.

IN THE MATTER OF THE PROCEEDINGS UPON A WRIT OF HABEAS CORPUS TO INQUIRE INTO THE CAUSE OF DETENTION

OF

WILLIAM KEMMLER.

4164

These proceedings having come on to be heard before me by virtue of a writ of habeas corpus, heretofore granted herein by the Hon. Charles C. Dwight, Justice of the Supreme Court, and returnable before me at the Court House in the City of Auburn, Cayuga County, N. Y., on the 18th day of June, 1889, and the same having been adjourned from time to time to this 25th day of June, 1889, at the same place, and the

Hon. Charles F. Durston, Agent and Warden of 4165 Auburn State Prison, having made return to said writ, and it having been controverted by the said William Kemmler; and Hon. Bourke Cockran and Charles S. Hatch, Esq., having appeared for the defendant, Kemmler, and Hon. Charles F. Tabor, Attorney General, George T. Quinby, Esq., District Attorney of Erie County, N. Y., and A. P. Rich, Esq., District Attorney of Cayuga County, N. Y., appearing for the People; the actual production of said Kemmler, pursuant to 4166 the command of said writ, was waived by consent of all parties interested. Thereupon the defendant's attorneys offered to prove that the infliction of the penalty named in the sentence—that is to say, the passing of an electrical current through the body of said William Kemmler (in whose behalf the habeas corpus has been allowed)—is a cruel and unusual punishment within the meaning of the Constitution, and that it cannot therefore be lawfully inflicted, and to establish the facts upon which the Court can pass, as to the 4167 character of the penalty.

The Attorney-General objected to the taking of testimony as to the constitutionality of this law on the ground that the Court has no authority to take such proof. The objection was thereupon overruled, and the Attorney-General excepted.

Thereupon the parties agreed that a referee be appointed for the purpose of taking testimony, and the signing of the several depositions of the witnesses was 4168 waived. Tracy C. Becker, Esq., Attorney-at-Law, of Buffalo, N. Y., was appointed such Referee by like consent. It was also stipulated that the Referee's fees and other expenses while taking the testimony for the people shall be paid by the State, and while taking the testimony for the defendant shall be paid by the defendant, Kemmler. It was also ordered that said Referee report and return such testimony on the 30th day of July, 1889, at 11 o'clock A. M., at the Court House in Auburn, 4169 N. Y., to which time and place the further proceedings in the matter were adjourned.

S. EDWIN DAY,
Cayuga County Judge.

[ENDORSED.]

STATE OF NEW YORK, } ss.
CAYUGA COUNTY CLERK'S OFFICE. }

I, Benjamin M. Wilcox, Clerk of the County of
4170 Cayuga, and of the Supreme Court of said State, and of the County Court of said County, each being a Court of Record and having a common Seal, do hereby certify that I have compared the annexed and foregoing copy of Order, etc., with the original thereof, now remaining on file and of record in my office as of July 5th, 1889, and that the same is a correct copy of such original, and of the whole thereof.

4171 [L. S.] In testimony whereof, I have hereunto set my hand and affixed the Seal of said County and of said Courts at Auburn, N. Y., this 5th day of July, 1889.

CHAS. G. ADAMS,
Deputy Clerk.

Before S. EDWIN DAY, County Judge of Cayuga Co., N. Y.

4172 THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,

AGAINST

CHARLES F. DURSTON, AS WARDEN OF THE STATE PRISON AT AUBURN, NEW YORK.

It is hereby stipulated by and between the parties to this proceeding, that the taking of the oath of office by the Referee herein is waived; that the fees of said

Referee are fixed and allowed at twenty dollars per 4173
day and expenses; and that Thomas D. Macnoe be employed as stenographer to take the testimony herein given before said Referee, said stenographer to furnish four copies of his minutes as follows: one copy which shall, when corrected, be considered as the original minutes of said Referee and certified to by the Referee, and shall be returned to the Court and filed as such; one copy for the use of counsel for the Relator; one copy for the Attorney-General, and one copy for the 4174
District Attorney of Erie County; and for his services and for which copies said stenographer shall charge the usual rates.

It is further stipulated that the presence of the Relator before the Referee, and the signing of each deposition by the respective witnesses, be dispensed with, and that all objections and exceptions to any question, answer, or proceeding herein, before said Referee, be considered as taken upon the hearing, and reserved until the coming in of the report of said Referee. 4175

DATED at the City and County of New York, July 8th, 1889.

W. BOURKE COCKRAN,
Counsel for Relator.

CHAS. F. TABOR,
Att'y-General.

by WM. A. POSTE, 4176
Deputy Att'y-Gen'l,
of Counsel for the People, etc.

GEO. T. QUINBY,
Dis't Att'y Erie Co., N. Y.

CHARLES S. HATCH,
Att'y for Relator.

4177 Before Hon. S. Edwin Day, County Judge of Cayuga County.

THE PEOPLE OF THE STATE OF NEW YORK, ex rel. WILLIAM KEMMLER,

against

CHARLES F. DURSTON, as Warden of the State Prison at Auburn, N. Y.

4178 It is hereby stipulated that the time of the Referee to make and file his report of the testimony taken herein, be extended to September 4th, 1889, or such other time subsequent to September 1st, 1889, as the County Judge of Cayuga County may order, and that the hearing before said County Judge take place at Auburn, N. Y., at 10 A. M. on said 4th day of September, 1889, or such other time subsequent to September 1st, 1889, as said County Judge may order, and that an order in accordance with this stipulation be granted by said County 4179 Judge on filing this stipulation with him, without further notice. It is further stipulated that the testimony be settled and printed under the direction of the Referee, each party to pay one-half the expense thereof.

Dated, Buffalo, July 30, 1889.

CHARLES F. TABOR,
Attorney General,
by W. A. Poste,
4180 *Deputy Attorney General.*

CHARLES S. HATCH,
Attorney for Kemmler.

W. BOURKE COCKRAN,
of Counsel for Kemmler.

GEORGE T. QUINBY,
District Attorney of Erie Co.

Before S. EDWIN DAY, County Judge of Cayuga Co. 4181

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,

AGAINST

CHARLES F. DURSTON, AS WARDEN OF THE STATE PRISON AT AUBURN, NEW YORK.

I, Tracy C. Becker, the Referee appointed by the foregoing order of reference, do hereby certify and 4182 report that the foregoing are all the proceedings taken and all the evidence offered by either party in the above entitled proceeding, and I hereby report and return said evidence and proceedings in accordance with said order.

I do further report that I have, pursuant to stipulation of counsel, hereto annexed, received and corrected the stenographer's minutes of the evidence given before me according to the fact, and caused the same 4183 to be correctly printed, and herewith return the same in printed form.

DATED, Buffalo, N. Y., September 11, 1889.

TRACY C. BECKER,

Referee.

4184

Before the County Judge of Cayuga County:

IN THE MATTER OF THE PROCEEDINGS UPON A WRIT OF HABEAS CORPUS, TO INQUIRE INTO THE CAUSE OF DETENTION OF WILLIAM KEMMLER. 4185

THE PEOPLE, ETC., EX REL WILLIAM KEMMLER,

AGAINST

CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN PRISON.

A writ of habeas corpus having heretofore been granted herein by the Honorable Charles C. Dwight, 4186 a Justice of the Supreme Court, directed to Charles F. Durston, Agent and Warden of Auburn State Prison, requiring him to have the body of said William Kemmler, together with the time and cause of the imprisonment of said Kemmler, before me, at the Court House in the City of Auburn, Cayuga County, N. Y., on the 18th day of June, 1889, and the hearing of the same having been adjourned from time to time to the 25th day of June, 1889, and on the day last 4187 mentioned and at the said Court House in the City of Auburn, the said Charles F. Durston, such Agent and Warden, having produced said Kemmler before me, and made return to such writ, and such return having been controverted by the said William Kemmler, upon the ground, as alleged, that the sentence and judgment of the Oyer and Terminer of Erie County, set forth in the return to said writ, as the cause of such imprisonment, were unconstitutional and void :

4188 And an order thereupon having been made by me to wit: on the said 25th day of June, 1889, appointing Tracy C. Becker, Esquire, of the City of Buffalo, attorney-at-law, a referee, to take the testimony produced in support of or against the imprisonment or detention of the said William Kemmler, and to report the same to me with all convenient speed, and the said referee having thereupon been attended by counsel for the prisoner and by counsel for the said 4189 Agent and Warden and for the People of the State of New York, and having taken such testimony and evidence and made return to me of the same, to wit: on the 11th day of September, 1889;

After reading and filing the petition herein, said writ, and the return of the said Durston thereto, and the evidence and testimony so returned and reported to me by the said Referee, it appearing therefrom that the said William Kemmler is duly and lawfully detained in the custody of the said Agent and Warden of 4190 the Auburn State Prison, by virtue of the final judgment of a competent tribunal of criminal jurisdiction, to wit: a court of oyer and terminer, held in and for the county of Erie, as set forth in the return to said writ, and that the term of his imprisonment has not expired;

It is, on motion of the Attorney-General, of counsel for the People and said Agent and Warden,

ORDERED, That the said William Kemmler be, and 4191 he hereby is, remanded to the custody of the said Agent and Warden of the State Prison at Auburn.

Dated, October 12th, 1889.

S. EDWIN DAY,

Cayuga County Judge.

STATE OF NEW YORK, } ss. 4192
CAYUGA COUNTY CLERK'S OFFICE, }

I, BENJAMIN M. WILCOX, Clerk of the County of Cayuga, and of the Supreme Court of said State, and of the County Court of said County, each being a court of record and having a common seal, do hereby certify, that I have compared the annexed and foregoing copy of Order with the original thereof, now remaining on file in my office, filed October 14th, 1889, and that the same is a correct copy of such original, 4193
and of the whole thereof.

[SEAL] In testimony whereof, I have hereunto set my hand and affixed the seal of said county and of said courts, at Auburn, N. Y., this 14th day of October, 1889.

B. M. WILCOX,
Clerk.

4194

COUNTY COURT, CAYUGA COUNTY.

Before Hon. S. EDWIN DAY, County Judge.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,
AGAINST 4195
CHARLES F. DURSTON, AS AGENT AND WARDEN OF AUBURN PRISON.

GENTLEMEN—Please take notice, that the relator, William Kemmler, appeals to the General Term of the Supreme Court, Fifth Department, from the order of the Hon. S. Edwin Day, County Judge of Cayuga County Court, herein entered in the office of the Clerk

4196 of the County of Cayuga on the 14th day of October, 1889, remanding the relator, William Kemmler, to the custody of the above named Charles F. Durston, Agent and Warden of the State Prison at Auburn, and from the whole of said order.

Dated, Buffalo, N. Y., October 16th, 1889.

Yours, &c.,

CHARLES S. HATCH,

4197 *Attorney for the Relator.*

To the Clerk of the County of Cayuga, to Hon. Charles F. Tabor, Attorney-General, to A. P. Rich, Esq., District Attorney Cayuga County, and to George T. Quinby, Esq., District Attorney Erie County, Attorneys for the People and Respondent.

4198

Before S. EDWIN DAY, County Judge of Cayuga County.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,
AGAINST
CHARLES F. DURSTON, AS WARDEN OF THE STATE PRISON AT AUBURN, N. Y. 4199

W. BOURKE COCKRAN, *of Counsel for Relator.*

CHARLES F. TABOR, Attorney-General,
Of Counsel for Respondent. 4200

OPINION.

DAY, County Judge: At a Court of Oyer and Terminer held at Buffalo, New York, on the 10th day of May, 1889, in a criminal action wherein the people of the State of New York were plaintiffs and William Kemmler, otherwise 4201 called John Hort, was defendant, he was convicted of murder in the first degree, in that, on or about March 29th of that year, in that city, he killed Matilda Ziegler, *alias* Matilda Hort, from a deliberate and premeditated design to effect her death, and on the 14th day of May aforesaid he was, for his crime, sentenced by said court to suffer death, to be inflicted by the application o electricity, in the Auburn State Prison, or in the yard or enclosure thereto adjoining, on some day in the week

4202 commencing June 24th, 1889, and in the mean time to be removed to, and, until the infliction of such punishment, to be kept in solitary confinement in said prison, pursuant to the provisions of Chapter 489 of the Laws of 1888, amending certain sections of the Code of Criminal Procedure relative to the infliction of the death penalty and to provide means therefor; and on the 16th day of May aforesaid, a warrant commanding his confinement and execution pursuant to said sentence was
4203 issued under the hand of the Hon. Henry A. Childs, the justice presiding at said court, and its seal, directed to Charles F. Durston, Esq., agent and warden of said prison, and thereafter, on the 11th day of June last, upon the petition of Charles S. Hatch, Esq., attorney for the defendant, setting forth the imprisonment and threatened deprivation of the life of the defendant, pursuant to said judgment, and alleging its invalidity under the Constitution of the United States and that of the State of New York, as imposing cruel and unusual
4204 punishment, a writ of *habeas corpus* was allowed by the Hon. Charles C. Dwight, Justice of the Supreme Court, directed to said agent and warden, returnable on the 18th day of the same month before the County Judge of Cayuga County, who, by consent, adjourned the proceedings from time to time, till the 26th day of June, when the agent and warden made return to the writ, in substance, that he was such officer and that he held the defendant by virtue of said judgment and warrant,
4205 averring the punishment aforesaid not to be cruel and unusual, and said act of the legislature not to be violative either of the Constitution of the State of New York or that of the United States, and this return the defendant controverted, admitting his confinement by said agent and warden by virtue of said judgment and warrant, but alleging their nullity as contravening the constitutional inhibition against punishments cruel and unusual, and thereupon, also, the defendant, by his counsel, offered to prove "that the infliction of the

penalty named in the sentence, that is to say, the passing of an electrical current through the body of the said William Kemmler, is a cruel and unusual punishment within the meaning of the Constitution, and that it cannot, therefore, be lawfully inflicted, and to establish the facts upon which the judge can pass, as to the character of the penalty;" the attorney-general objected, and the objection being overruled, the appointment of a referee was agreed upon, for the purpose of taking the testimony, and Tracy C. Becker, Esq., was named such referee accordingly, and he has now made report, transmitting a large amount of testimoney taken by him, and argument has been had. 4206 4207

The primary inquiry is whether, in a proceeding like the present, the constitutionality of the statute under which the prisoner is detained can be impeached?

By section 2,032 of the Code of Civil Procedure it is provided that in *habeas corpus* proceedings the prisoner is to be remanded, if it appears that he is detained in custody by virtue of the final judgment or decree of a competent tribunal of civil or criminal jurisdiction, or 4208 by virtue of an execution or other process issued upon such a judgment. By section 2,031, the prisoner's discharge is provided for, "if no lawful cause for the imprisonment or restraint, or for the continuance thereof is shown, whether the same was upon a commitment for an actual or supposed criminal matter, or for some other cause," and by section 2,034, the court or judge, upon the return of the writ, is prohibited from enquiring into the legality or justice of any mandate, judgment, 4209 decree or final order specified in section 2,032 except as therein stated. The Revised Statutes, regulating proceedings on *habeas corpus*, in force before the adoption of the Code, were to the same effect. In the *Matter of Donahue*, 1 *Abb. New Cases*, 1, it was held by the supreme court that, on *habeas corpus*, the constitutionality of the law under which the prisoner was committed could not be attacked. The reason assigned

4210 was that so to do would be to enquire into the legality of the judgment. But the case of *The People ex rel. Tweed vs. Liscomb*, 60 *N. Y.*, 559, in the court of appeals, must, I think, be regarded as establishing a different doctrine. It was there said that it is no new feature of the law that inferior magistrates may, when thereunto called, sit in judgment on the jurisdiction of the highest courts, that the prohibition of the *habeas corpus* act, forbidding the enquiry by the court or officer into the
4211 legality of the previous judgment, decree or execution, does not and can not, without nullifying in good measure the provisions of certain sections of the act, take from the court or officer the power or relieve from the duty of determining whether the process, judgment, decree or execution, emanated from a court of competent jurisdiction, and whether the court making the judgment or issuing the process, had the legal and constitutional power to give such judgment or send forth such process. It simply prohibits the review of the
4212 decision of a court of competent jurisdiction. If the record shows that the judgment is not merely erroneous, but such as could not under any circumstances, or upon any state of facts, have been pronounced, the case is not within the exception of the statute and the applicant must be discharged. As well at the common law as under the statutes, if the party is detained on process, the existence and validity of the process are the only facts in issue, and the right to inquire into the
4213 validity of the process is co-extensive with that which is allowed in an action for false imprisonment. If the process is valid on its face, it will be deemed *prima facia* legal, and the prisoner must assume the burthen of impeaching its validity by showing want of jurisdiction. Error, irregularity, or want of form, is no objection nor is any defect which may be amended or remedied by the court from which it issues. If there was no legal power to render the judgment or issue the process, there was no competent court, and consequently no

judgment or process. All is *coram non judice* and void. 4214
It will not answer to say that a court having power to
give a particular judgment can give any judgment,
and that a judgment not authorized by law is merely
voidable and not void. This would be trifling with the
law, the liberty of the citizen and the protection thrown
around his person by the bill of rights and the Constitution,
and creating a judicial despotism. It would be
to defeat justice, nullify the writ of *habeas corpus* by the
merest technicality and the most artificial process of 4215
reasoning. A sentence not warranted by statute is
ultra vires, and like every other act whether judicial or
ministerial, done without legal authority, is void.
When the judgment is such as could not, under any
circumstances or upon any state of facts have been
legally pronounced, the prisoner is entitled to be discharged.
(*People ex rel. Fry vs. The Warden, etc.*, 100
N. Y., 24; *People vs. Nash*, 12 *W. D.*, 545; *Ex parte
Lange*, 18 *Wall*, 163; *People ex rel. Devoe vs. Kelley*, 32
Hun, 536.) There is no authority for this judgment 4216
and warrant, unless it be found in the law of 1888. I
conclude, therefore, that the constitutionality of that
law is a proper subject of enquiry on this application,
since, if it is unconstitutional it is no law, and the
judgment of the court based upon it was without
authority. It was not the judgment of a competent
tribunal.

The Constitution of the United States and that of
the State of New York, in language almost identical, 4217
provide against cruel and inhuman punishment, but it
may be remarked, in passing, that with the former we
have no present concern, as the prohibition therein
contained has no reference to punishments inflicted in
State courts for crimes against the State, but is addressed
solely to the national government and operates as a
restriction on its power. (*Story on Const.*, 1904.) But
our own State fundamental law is so benignant that
not even he who cruelly murders can be cruelly punished.

4218 Section 505 of the Code of Criminal Procedure in force prior to the enactment of 1888, provided that the punishment of death should in every case be inflicted by hanging the convict by the neck until dead, and was almost a literal transcript of the statute which it superseded. (2 R. S., 659, Sec. 25.) By chapter 489 of the laws of 1888, that section of the Code of Criminal Procedure was amended so as to read as follows: "The punishment of death must, in every case, be inflicted by causing to pass through the body of the convict a 4219 current of electricity of sufficient intensity to cause death, and the application of such current must be continued until such convict be dead." And it is this attempted change in the mode of inflicting the death penalty as punishment for crime that provokes the present controversy, and it is in these circumstances that I am asked to discharge the prisoner from his present detention, it being contended in his behalf that the legislative enactment under consideration provides 4220 punishment both cruel and unusual, the infliction whereof may well result in subjecting its unfortunate victim to the most extreme and protracted vigor and subtilty of cruelty and torture; while on the other hand it is insisted that the act is one promotive of reform, a step forward and in keeping with the scientific progress of the age, that the application of electricity as proposed, will result in the immediate and painless death of the culprit, so that the unsightly and horrifying spectacles which now not infrequently attend exe- 4221 cutions by hanging, will effectually be prevented, that the question is not whether any particular engine provided or to be provided for use in the attempted enforcement of the law will prove successful in operation, whether the continuous or alternating current is better for the purpose, or whether any certain quantity or force of electricity will kill the condemned, except as that force or quantity is limited by ability to generate it. Paradoxical as it may seem, both of these positions

are professedly based on grounds of mercy and 4222
humanity.

The question of the constitutionality of this law is of importance, for, apart from any other consideration, should it ultimately be held unconstitutional, not only may the condemned possibly escape his dessert for adjudicated guilt, but all other persons committing capital crimes since the beginning of the current year may likewise go unpunished, inasmuch as it is expressly provided in section 10 of said chapter that, after it 4223
takes effect, a crime punishable by death must be punished according to its provisions and not otherwise, and it is clear that any penal act hereafter passed to apply to those cases would necessarily and justly be held void, as *ex post facto*.

And it is a question of novelty. There is no precedent for guidance or following. It is the pioneer case, and its final decison is awaited with interest, not only in this State, but in other States and countries.

In this connection it is noteworthy that the question- 4224
able chapter became law after much more than ordinary consideration and deliberation. The executive had called the attention of the legislature to the subject of the infliction of the death penalty by hanging, suggesting the question of change, and by an act passed in 1886, and amended in 1887, a commission, consisting of gentlemen of recognized standing, ability and learning had been appointed to investigate and report the most humane and practical method known 4225
to modern science of carrying into effect the sentence of death in capital cases, and after having made the subject their special care and study, they made report of their proceedings, and the act whose provisions are now criticised was the outcome of their labors and judgment, and met legislative favor and executive approval. And it is against all this that I am now asked to interpose and hold null that result as counter to the Constitution.

4226 The question is also one largely of fact. Section 2,031 of the Code of Civil Procedure provides that the court or judge before which or whom a prisoner is brought by virtue of a writ of *habeas corpus* must, immediately after the return of the writ, examine into facts alleged in the return and into the cause of the imprisonment or restraint of the prisoner, and, as before said, must make a final order to discharge him therefrom, if no lawful cause for the imprisonment
4227 or restraint, or for the continuance thereof is shown, whether the same was upon a commitment for an actual or supposed criminal matter, or for some other cause. And it was because the burden of satisfying the judicial mind of the cruel and unusual, and therefore unconstitutional character of the law in question was upon the defendant (*People ex rel. Tweed vs. Liscomb, supra*), and to afford him opportunity to present the facts as he claimed them to be, that, as the better course the reference was ordered, notwithstanding
4228 what was said by Earl, J., in the *Matter of the Elevated R. R. Co.*, 70 *N. Y.*, 327, to the effect that proof could not be taken for the purpose of showing a statute, valid and regular on its face, to be unconstitutional, because it was considered that this case widely differed from that, inasmuch as in this, as not in that, scientific questions were involved, that an intelligent decision of the question would seem to require that there be furnished to those called upon to decide, all the light
4229 that scientists, experts and others having large experience in electrical matters should be able to give, matters which could not be said to be of common knowledge, and concerning which Judges could not be supposed to have any better understanding than legislators, and, generally, upon the grounds and for the reasons usually assigned for the admission of so-called expert testimony on ordinary trials of questions of fact, and upon the further consideration that if the reference should be held, on appeal, to have been rightfully ordered, the

testimony would be at hand for use, and, otherwise it 4230
might be disregarded and the error would be harmless.

It was, however, to be expected, as the result is, that the testimony would prove to be conflicting and, of necessity, in great degree speculative and hypothetical, for on no person has the experiment yet been tried, and no endeavor to take human life by means of electricity has been made, under the circumstances and conditions, and with the appliances indicated by scientific knowledge as those most favorable to produce a 4231
fatal result.

Although the phrase, cruel and unusual punishments, has a history of two hundred years, it is not an easy task to define it. It was said in *Wilkinson vs. People*, 9 *Otto*, 130, that "difficulty would attend the effort to define with exactness the extent of this constitutional provision." Courts have rarely been called upon to construe it. Nor is it now at all needful, in the view which I entertain of the present case and of my duty
in regard to it, to attempt any accurate and compre- 4232
hensive definition. Beyond doubt, many of the methods used for the infliction of the death penalty in other times and countries would to-day and in our land be held illegal. As among these may be mentioned crucifixion, boiling in water, oil or lead, blowing from cannon's mouth, burning, breaking on the wheel, dismemberment, burying alive. But not death itself is a cruel and unusual punishment, nor is death by gun shot or
by hanging, though there seems to be an element of 4233
cruelty inseparable from any taking of human life as punishment for crime, but it is clearly not against this that the constitutional prohibition is directed. It was held by the Supreme Court of the United States, in the Wilkinson case above cited, that a sentence to death by shooting was not illegal in Utah. Death was the penalty for murder at the common law, and of its infliction Blackstone said: "If upon judgment to be hanged till he is dead the criminal be not thoroughly

4234 killed but revives, the sheriff must hang him again. For the former hanging was no execution of the sentence; and if a false tenderness were to be indulged in such cases, a multitude of collusions might ensue. Nay, even while abjurations were in force, such a criminal, so reviving, was not allowed to take sanctuary and abjure the realm, but his fleeing to santuary was held an escape in the officer," (4 *Com.*, 466). "Any punishment declared by statute for an offense which
4235 was punishable in the same way at the common law, probably cannot be regarded as cruel and unusual in the constitutional sense" (*Cooley on Const. Lim.*, 329). The common law rule applied in this State when the constitutional provision under consideration was adopted, and long before and ever after, until the act of 1888 took effect, and no question was made as to the legality of death by hanging. That statute but changed the means whereby to produce death. And can it be said that in this case it has been plainly and beyond
4236 doubt established that electricity as a death-dealing agent is likely to prove less quick and sure in operation than the rope? I believe not.

But, back of all other questions mooted on the argument lies another, and it is, what is the duty of courts and judicial officers when called upon to declare, in a case like this, a legislative act void as against the constitution, and by what rule should they be governed? "The power of the State over crimes is committed by
4237 the constitution to the legislature without a definition of any crime, without a description of any punishment to be adopted. It is, then, a power to produce the end by adequate means, a power to establish a criminal code, with competent sanctions, a power to define crimes and prescribe punishments by laws in the discretion of the legislature" (*Barker vs. The People*, 3 *Com.*, *p.* 705). Every presumption is in favor of the act (*People vs. Hatfield*, 78 *N. Y.*, 361). Every statute is presumed to be constitutional, and every intendment

is in favor of its validity. When a statute is challenged 4238
as in conflict with the fundamental law, a clear and substantial conflict must be found to exist to justify its condemnation, but when found, courts must not hesito condemn. The constitution is the voice of the people speaking in their sovereign capacity, and it must be heeded (*Matter of N. Y. El. R. R. Co.*, 70 *N. Y.*, *p.* 342; *Warner vs. Beers*, 23 *Wend*, 166). Courts do not sit in review of the discretion of the legislature, or
to determine upon the expediency, wisdom or propriety 4239
of legislative action in matters within the powers of the legislature (*People vs. Albertson*, 55 *N. Y.*, *p.* 54). "It is a solemn thing to do, in any case, to declare that the body of men to whom the people have committed the function of making the laws for the commonwealth have deliberately disregarded the limitations imposed on this delegated authority and usurped power which the people have been careful to withhold, and it is almost equally so when the act which is adjudged to be unconstitutional appears to be chargeable rather to care-
less and improvident action or error in judgment, than 4240
to intentional disregard of obligation. Courts ought never to declare a statute void unless its nullity and invalidity are placed, in their judgment, beyond reasonable doubt. Such a ruling ought not to rest on vague conjecture" (*Cooley on Const. Lim.*, 159, 182, 183). The validity of an act is to be presumed until its invalidity is proved beyond a reasonable doubt (*Ogden vs. Sanders*, 12 *Wheat*, 213). The opposition between
the constitution and the law should be such that the 4241
judge feels a clear and strong conviction of their incompatibility with each other (*Fletcher vs. Beck*, 6 *Crouch*, 87, 128). A legislative act is not to be declared void upon a mere conflict of interpretation between the legislative and judicial power. Before proceeding to annul by judicial sentence what has been enacted by the law-making power, it should clearly appear that the act can not be supported by any reasonable intendment or allowable presumption.

4242 (*People vs. Supervisors of Orange*, 17 *N. Y.*, *p.* 241.) The judicial power in declaring an act of the legislature void, does not proceed upon the theory that it has superiority over the legislative, or that laws, to be valid, must conform so its notions of wisdom or propriety. The duty and responsibility is upon the courts to decide, when the question is presented to them, whether an act the constitutionality whereof is assailed, transgresses the inhibitions of the fundamental law, and if found so to do it is no law and is to be so de- 4243 clared. It is manifest that the duty should be proceeded upon with great caution and hesitation, since one co-ordinate branch of the government, the judicial, is thus asked to determine that another branch, the legislative, has erred. That this should be fearlessly done in a proper case is undoubtedly true, but it is as true that the power is not to be exercised unless the necessity for so doing is clearly apparent.

All the authorities are, I believe, to the effect that in 4244 a doubtful case a statute assailed as unconstitutional should not be judicially declared so to be. The grounds and reasonableness of the rule appear in the citations already made, and no reason is perceived why it should not have application in every case, whether civil or criminal, in whatever manner the doubt may arise, and whether it be on a question of law or fact. And all of these considerations apply with peculiar force when the question is presented on a motion before a single judicial officer (*Macomber vs.* 4245 *Mayer*, 17 *Abb. Pr. R.*, 35). In several jurisdictions it is the constant practice not to allow a case involving a constitutional question to be heard until every member of the court is present. Indeed, in one State (Rhode Island) it is provided by statute that whenever the constitutionality of any legislative act is called in question, in any other than the Supreme Court, such court shall rule the act to be constitutional, and if its judgment is rendered against the party raising the question,

it shall certify the cause to the Supreme Court for its 4246
decision. A writer has recently said that "a deference to the opinion of the legislature, and a modest consciousness of one's liability to err, would naturally prevent a single judge from declaring an act to be unconstitutional, except in a clear case." It was declared in the *Matter of Donahue, supra*, that it is safe and better, when a judgment has been rendered, which an express statute authorizes, to leave its review to the regular and more deliberate process of the higher 4247
courts, than to make of every court and officer authorized to issue this writ a tribunal summarily to decide such grave and momentous questions.

From the foregoing authorities, three rules appear, and they are, first, that to every legislative act there attaches a presumption of constitutionality and the burden of showing it to be unconstitutional is upon him who assails it; second, that no such act should be annulled by the judiciary as opposed to the fundamental law in a doubtful case; and, third, that when 4248
a constitutional question arises before a single magistrate he should only declare the law invalid when his duty so to do is entirely clear, and that in any case of grave import he is justified, if not by propriety required, to leave the matter to the deliberation and determination of appellate tribunals.

Applying, then, these principles to the present case, the questions are whether the prisoner has overcome that presumption, whether he has made it appear by 4249
proofs or otherwise, beyond doubt, that the statute of 1888 in regard to the infliction of the death penalty provides a cruel and unusual, and therefore unconstitutional, punishment, and that a force of electricity sufficient to kill any human subject with celerity and certainty, when scientificially applied, cannot be generated. In my judgment these questions must be answered negatively. The utmost that can justly be said in his favor is that there is diversity of opinion on

4250 the principal question. Before the statute can be rightfully abrogated, there should be judicial knowledge that the punishment therein provided is cruel and unusual. There is no such knowledge and his contention fails. In any case, the gravity of the matter demands that it be left to the courts for their determination.

If these views are correct, the claim so earnestly and eloquently pressed by the learned counsel for the prisoner to the effect that if it is doubtful that electricity 4251 will kill at once, and therefore painlessly, in every instance in which it may be administered to take the life of a culprit as condign punishment, his client should be discharged, as there is and can be no valid law in this State whereby even a convicted murderer can be delivered over to an experiment, and that to hold otherwise is a rule against, at least, the spirit of the constitution, can not be here allowed.

I do not discuss the testimony, for, in view of the understanding that the matter is to engage the atten- 4252 tian of the intermediate and ultimate courts of appeal, it would be a work of supererogation so to do, inexpedient and profitless.

There is still another factor in the case to which no allusion has been made, but which has no little weight in determining my course of action, and it is, that the Court of Oyer and Terminer, in passing sentence upon the defendant, by implication at least, must be deemed to have pronounced in favor of the constitutionality of 4253 the disputed law. Judicial comity and a decent respect for that tribunal would seem to require that I follow that ruling. (*People ex rel. Phelps vs. Fancher*, 2 *Hun*, 226, 235.)

Having thus sufficiently indicated the grounds of my decision, consideration of the other question suggested on the argument is unnecessary.

An order will be made remanding the prisoner.

SUPREME COURT—GENERAL TERM. 4254

FIFTH DEPARTMENT.

THE PEOPLE EX REL. WILLIAM KEMMLER, *Appellant.*	**Argued Oct., 1889.**
AGAINST	
CHARLES F. DURSTON, AGENT AND WARDEN, ETC., *Respondent.*	**Decided.**

4255

Appeal from an order of the County Judge of Cayuga County, dismissing a writ of *Habeas Corpus*, and remanding the relator to the custody of the respondent.

Mr. W. BOURKE COCKRAN for appellant.

Mr. WILLIAM A. POSTE, Deputy Attorney General, for respondent.

DWIGHT, J. 4256

The relator, being in the custody of the respondent, as Agent and Warden of the State Prison at Auburn, sued out a writ of *habeas corpus* to inquire into the cause of detention, which was made returnable before the County Judge of the County where he was imprisoned.

The petition for the writ of *habeas corpus* alleged that the cause or pretense of the imprisonment complained of, was that after the indictment and trial of 4257 the relator for the crime of murder in the first degree, and his conviction thereof in the Court of Oyer and Terminer of Erie County, he was sentenced by that Court to undergo a cruel and unusual punishment for such crime, contrary to the Constitution of the State of New York and of the United States; and that he was deprived of liberty and threatened with deprivation of life by virtue of such illegal sentence and judgment of the Court.

4258 The return of the respondent, which was not traversed as to the facts, showed that the sentence or judgment of the Court mentioned in the petition was pronounced, and the warrant under which the relator was held, was issued to the respondent thereupon, in pursuance of Chap. 489 of the Laws of 1888, which amended the Code of Criminal Procedure in respect to the time and mode and place of inflicting the death penalty; and among other things substituted death by electricity for death by hanging. 4259 Section 505 of the Code, as thus amended, reads as follows: "The punishment of death must in every case be inflicted by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death, and the application of such current must be continued until the convict is dead."

To the return of the respondent a demurrer *ore tenus* seems to have been interposed in behalf of the relator, and an offer was made to prove that the punishment 4260 prescribed by the Statute quoted was a "cruel and unusual punishment." The offer was objected to by counsel for the respondent, but the objection was overruled, and a Referee was appointed to take and report such proofs as should be offered by either party, on the question proposed. Very voluminous evidence, offered by counsel on both sides, was taken accordingly, and returned to the County Judge, and is printed in the record before us.

4261 The order below dismissed the writ and remanded the prisoner to the custody of the Agent and Warden of the State Prison. An appeal from that order brings the case into this court, and presents a question very novel in its character and in the manner of its presentation. The attempt is to enforce the provision of the Constitution against cruel and unusual punishments, by judicial condemnation of an act of Legislature, based upon evidence, *aliunde* the statute assailed, intended to show the character of the penalty prescribed thereby.

The constitutional provision here invoked originated 4262
in the well known "Bill of Rights" of England. That celebrated enactment was one of the first fruits of the great revolution of 1688. It was entitled "An Act declaring the rights and liberties of the subject, and settling the succession of the crown." It has been said to be "next to Magna Charta, the greatest landmark in the constitutional history of England and the nearest approach to the written constitutions of other countries." (Encyc. Brit.) It had been first proposed 4263
to the Prince and Princess of Orange by the revolutionary convention which called them to the throne of England, as a declaration of principles and conditions upon which the call was made: and, being accepted by them, with the crown, was enacted, as a Bill of Rights, by the Parliament into which the convention was resolved. This declaration recited, in a preamble, the oppressive and unconstitutional measures and proceedings of the lately deposed king and his ministers and judges—among others "that excessive 4264
bail hath been required of persons committed in criminal cases, to elude the benefit of the laws made for the liberty of the subject; and excessive fines have been imposed and illegal and cruel punishments inflicted," all of which it declared were "clearly and directly contrary to the known laws and statutes and freedom of this realm;" and it went on to declare, among other things, "that excessive bail ought not to be required, nor excessive fines imposed, nor cruel and unusual 4265
punishments inflicted."

Just a century later, the particular provision in question was adopted into the Constitution of the United States, as the eighth article of the amendments proposed by the first Congress, "begun and held March 4, 1789," and which were ratified by the required number of the orignal thirteen States. The variation in the terms of the constitutional provision of the United States from those employed in the declaration of the

4266 English Parliament, consisted in the substitution of "shall not" in the former for "ought not" in the latter.

The provision was first engrafted upon the fundamental law of this State in the constitution of 1846, where it occurs with the addition of the clause, "nor shall witnesses be unreasonably detained."

It seems very clear that no provision of the English Bill of Rights was intended to operate as a restriction
4267 upon the power of the legislative branch of the government of England. That enactment was, as as has been said, in the nature of a compact between the Crown and the Parliament as the representative of the People. Its protest was chiefly against acts of tyranny and oppression on the part of the Crown, in excess or abuse of its prerogative, and in derogation of the authority of Parliament. The acts declared illegal were those of the administrative and judicial departments of the government. The whole tenor of
4268 the bill, its title, the history of the times, and of the emergencies which gave it occasion, forbid the idea that it was intended, in any manner, to restrict or control the law-making power. Besides—(in respect to the particular provision here in question)—at the time of its enactment the punishments of crime were prescribed not by statute but wholly by the common law; and the common law in this respect was largely subject to the discretion of the judges. It was the oppressive
4269 exercise of that discretion by judges appointed by the Crown, and removable at its pleasure, that was among those things denounced by the preamble and declared to be illegal in the body of the bill; and the compact, in this particular, on the part of the Crown, may be said to have been not to appoint, or retain in office, judges capable of grossly abusing the judicial authority. Moreover the context of the provision against cruel and unusual punishments, on the principle of *noscitur a sociis*, opposes the assumption that it had any reference to

legislative action; since the fixing of bail and the 4270 imposition of fines pertained wholly to judicial procedure.

In regard to the similar provision of the Constitution of the United States. (*Art.* 8, *Supra.*), it is, in the first place, to be observed that it has no application to any department of the government of the States, but is a restriction upon the federal government only: (*Barrow vs. Baltimore*, 7 *Peters*. 243; *Pervear vs. Commonwealth*, 5 *Wall*. 475; *Jackson vs. Wood*, 2 *Cow.*, 4271 819; *Barker vs. The People*, 3 *Id.*, 686.) In this respect it differs from the inhibition of the passage of *ex post facto* laws, which when it first occurs (*in sub.* 3, *Sec.* 9, *Art.* 1,) restricts the power of Congress; and when repeated in sub-division 1, of the next section, is expressly addressed to the States.

Whether the provision of Article 8 was intended to limit or control the action of Congress in prescribing penalties for crime, might be questioned upon some of the grounds mentioned under the point last discussed; 4272 especially because, at the formation of the federal government, the common law of England prevailed in the communities which the new government embraced; the penalties for crimes had not been fixed by statute, and no change in this respect was introduced or foreshadowed by the Constitution.

The case was quite otherwise with the State of New York at the time of the insertion of the provision in question into its constitution. Then, after nearly sixty 4273 years of constitutional existence as a State, the punishment of crime was almost wholly in the control of the legislature. Gradually, the statutory definitions and statutory penalties of crimes had superseded those of the common law, until by the revision of 1829 a complete codification was attempted of all the penal laws of the State; the intention being to define either specifically or by classes all crimes cognizable by its courts, and to prescribe the character of the punish-

4274 ment to be inflicted in every case. Under the revised statutes the judicial discretion was limited to fixing the term of the imprisonment to be inflicted, or the amount of the fine to be imposed. The death penalty was confined to the three felonies of treason against the State, murder and arson in the first degree; the punishment of all other felonies was limited to imprisonment in the State prison for life or a term of years; and of misdemeanors to fine or imprisonment
4275 in the county jail, or both; and the term of imprisonment, either in the State prison or in the county jail was, in most cases, limited by a maximum fixed by statute.

Such being the case it would seem that the provision in the State constitution against cruel and unusual punishments, if it were to have any practical operation—if it was anything more than a mere glittering generality calculated to please the popular fancy and gratify the popular taste for a "declaration of rights,"—
4276 must have been intended as a restriction upon legislative authority; and such—without further discussion of the question—we conclude it is the import and effect of the provision; and that if occasion should arise, it would be the duty of the courts to enforce it. We have no doubt that if the Legislature of this State should undertake to prescribe, for any offense against its laws, the punishment of burning at the stake, breaking on the wheel, disembowelling, or hanging in chains, (to
4277 perish by exhaustion), it would be the duty of the courts to pronounce upon such attempt the condemnation of the constitution.

In the case supposed, no doubt could exist because the statute would be, on its face, repugnant to the provision of the constitution against cruel and unusual punishments. It is common knowledge that the punishments mentioned are unusual, and by the common consent of mankind they are cruel punishments, because they involve torture and a lingering death.

The question is now to be answered whether the legislative act here assailed is subject to the same condemnation. Certainly it is not so on its face, for though the mode of death prescribed is conceded to be unusual, there is no common knowledge or consent that it is cruel: on the contrary there is a belief, more or less common, that death by an electric current, under favorable circumstances, is instantaneous and without pain. It was, therefore, a question of fact whether an electric current, of sufficient intensity, and skillfully applied, will produce death without unnecessary suffering. Is this question open to the investigation of the Court, when called upon to decide upon the validity of the law in question, or must it be presumed to have been determined by the legislature, in favor of the mode of punishment prescribed? It may safely be assumed that now, for the first time in the history of our jurisprudence, has a court been called upon to enter upon such an investigation. Ordinarily the question of the constitutionality of the legislative act is a question of interpretation merely, viz., what is the scope and intent of the constitutional provision invoked; and what,—judged by the legal construction of its terms, aided, if necessary, by the history and circumstances of its enactment,—is the legal import and effect of the statute assailed; and, when the two are so interpreted, is the latter in clear and undoubted repugnance to the former? It is conceded that there is nothing in the terms of this act to bring it into hostility to the constitutional provision; and the history and circumstances of its enactment, as demonstrating its purpose and intent, are of directly contrary effect. It is a part of the history of the State that the legislation in question was based upon the report of a commission, consisting of three well known citizens, appointed by chapter 352 of the laws of 1886, "to investigate and report to the legislature, * * * the most humane and practical method, known to modern 4278 4279 4280 4281

4282 science, of carrying into effect the sentence of death in capital cases." The report of the commission, presented to the legislature in January, 1888, detailed and summarized the results of their investigations and experiments, and was accompanied by the draft of a bill, recommended for passage, and which was, at the same session of the legislature, enacted into the statute, amending the Code of Criminal Procedure, the validity of which is here in question. If anything were needed
4283 to fortify the presumption of the humane and merciful intent of that statute, this brief history would supply it. Of course there is no contention against this presumption; but the objection of the relator is, in substance, that notwithstanding its manifest purpose to conform to the statute, by this amendment, more closely than before, to the letter and spirit of the constitutional provision, the legislature was in fact ignorant of the character and effect of the penalty prescribed by the amendment; and that, through
4284 ignorance, it has fallen into a palpable violation of the constitution; and the proposition is to support this objection by proofs *aliunde* the statute.

The enquiry, we believe, it is not competent for the court to make. No rule of law is better settled than that every intendment is in favor of the constitutional validity of legislative acts, (*The People vs. Home Ins. Co.*, 92 *N. Y.*, 328; *Matter of Elevated R. R. Co.*, 70 *Id.*, 327; *The People vs. Albertson*, 55 *Id.*, 50). The rule
4285 includes intendments of fact as well as of legal interpretation, and we are bound to presume that the legislature knew, even though the court may be ignorant of the facts, necessarily involved in the legislative action.

In this respect, the presumption which arises upon the statute must be conclusive on the court and not liable to be rebutted by proof *aliunde*. There is nothing in the constitution of our government or in the nature of things, which gives any color to the

proposition that, upon a mere question of fact, involved 4286
in legislation, the judgment of the court is superior to that of the legislature itself; nor is there any authority for the proposition that, in respect to such question, relating either to the manner or the matter of legislation, the decision of the legislature can be reviewed by the court.

In the case of *Matter of Elevated R. R. Co.*, (*supra*), it was said that the courts can not take proofs *aliunde* for the purpose of ascertaining whether a statute, valid 4287
and regular on its face, is unconstitutional; that they can not go behind the statute itself; that they can not assume to know that facts necessary to the constitutionality of the legislative act did not exist, but, on the contrary, may assume that the legislature found that those facts did exist. So too, in respect to the manner of the passage of a bill — whether the constitutional quorum was present, and a vote of a constitutional majority was given in its favor,—the statute must be its own evidence and can not be rebutted; the question 4288
is not one of fact but of law, to be determined by the record. (*Warner vs. Beers*, 23 *Wend.*, 125; *People vs. Devlin*, 33 *N. Y.*, 280.)

It is not merely upon principles of comity between co-ordinate branches of the government of the State, but because of the separate province and responsibility of the legislature from that of the courts, that we hold that the latter are not permitted to enquire whether the former was ignorant of the facts necessary to deter- 4289
mine the meaning and effect of the laws which it has enacted; and — in respect to the particular statute in question — that the presumption that the legislature had ascertained the facts necessary to determine that death, by the mode prescribed, was not a cruel punishment, is conclusive upon the court.

But, even if the enquiry proposed were open to the court, our decision upon the question of fact must undoubtedly be controlled by the principle that the

4290 burden is upon him who assails the law to demonstrate its repugnance to the constitution in the respect alleged.

In the case of *Dartmouth College vs. Woodward*, (4 *Wheat.*, 518), in which some of the most important questions of constitutional law were settled for all time, Chief Justice Marshall said: "This court on more than one occasion has expressed the cautious circumspection with which it approaches such questions: and has declared that in no doubtful case 4291 would it pronounce a legislative act to be contrary to the constitution;" and, in *Fletcher vs. Peck*, (6 *Cranch.*, 87,) the same great judge said: "It is not upon slight implication or vague conjecture that the legislature will be pronounced to have transcended its powers."

In *Ogden vs. Saunders* (12 *Wheat.*, 270,) Mr. Justice Washington said: "It is but a decent respect due to the wisdom, the integrity and the patriotism of the legislative body by which any law is passed, to presume 4292 in favor of its validity until its violation of the constitution is proved beyond all reasonable doubt." And in *The People vs. Albertson* (*supra*), the Court of Appeals of our own State, by Allen, J., said: "There should be no reasonable doubt of the unconstitutionality of a statute before it should be annulled by judicial action."

The case of *Hartung vs. The People* (22 *N. Y.*, 95,) is urged upon our attention by counsel for the relator, as, 4293 in some manner, impugning the application of this principle in the case of statutes prescribing or regulating the punishment of crime; but we are unable to see that it has that effect in any degree. That case arose under the act of 1860, which made the offense of murder, previously committed, and even of which the accused had been already convicted, punishable otherwise than as it was punishable at the time of its commission. This was, as Judge Denio said, "of the essence of an *expost facto law*"; but the convict could

not complain if the only effect of the new law was to 4294
remit a separable portion of the penalty prescribed by
the old: and that was held not to be the effect of the
new law then in question. It is argued here that the
decision was upon the ground that the new penalty
might turn out to be in excess of that prescribed by
the former statute. But there seems to have been no
question of possibilites in the case. The law was ab-
solutely and on its face *ex post facto* as to all cases of
the class to which that of the plaintiff in error be- 4295
longed. On its face it did not lessen, but added a year
of imprisonment to the penalty of death formerly im-
posed. True, the Governor—and successive Governors
—might, in the exercise of supposed clemency, refrain
from issuing the required warrant for the execution of
the death sentence, after the convict's year of impris-
onment; and so the sword, that forever hung by a
single hair, might never fall. But so under the old
law might the Governor remit or commute the penalty
imposed by the sentence of the Court, The new law 4296
afforded no remission of the penalty of death.

There seems to be no reason, either upon principle
or authority, why the rule so strenuously held in regard
to the burden of establishing the unconstitutionality
of a law, should not apply with full force to an objec-
tion based upon matters of fact, if that objection were
open to investigation by the Court. We have read
with much interest the evidence returned to the County
Judge, and agree with him that the burden of the proof 4297
is not successfully borne by the relator. On the contrary
we think that the evidence is clearly in favor of the
conclusion that it is within easy reach of electrical
science at this day to so generate and apply to the per-
son of the convict, a current of electricity of such
known and sufficient force as certainly to produce in-
stantaneous, and therefore painless, death. It detracts
nothing from the force of the evidence in favor of this
conclusion that we do not know the nature of elec-

4298 tricity, nor how it is transmitted in currents, nor how it operates to destroy the life of animals and men exposed to its force. Neither do we know the nature of the attraction of gravitation—which is the operative force employed in the infliction of death by hanging—nor how that force operates to draw towards each other masses of matter freely moving in space.] We know these, and all other forces of nature, by their effects; and we avail ourselves of them in the daily processes
4299 and pursuits of life with a confidence based upon common experience, without inquiry as to the essence of the force or the mode of its operation.

The experiments with electricity, as a death dealing agency, disclosed by the evidence, were necessarily confined to the lower animals; but, unfortunately, the experience of mankind in this respect has not been confined to experiments purposely made. Death by strokes of lightning has been known to the world in all ages; and the frequency and publicity of death
4300 by accidental contact with electric wires during the last few years, and especially the last few months, has made the deadly power of the electric current shockingly familiar wherever the newspaper is read. In most casualities of this sort—the exposure being wholly accidental—the contact is imperfect, the resistance unregulated, and the force of the current accidentally deflected through the body of the subject, only a fraction of that being transmitted through the
4301 wires. Accordingly, in some cases the victim of the accident has escaped with his life, and in some cases death has been accompanied with burnings and contortions. But in all such cases the effects mentioned have evidently been due to lack of force in the current received or to the imperfect manner of its application to the body of the victim; and the general result of these demonstrations, in the light of the scientific evidence in this case, is, as we think, to remove every reasonable doubt, that the passage of a current of

electricity, of a certain well determined intensity, 4302
through the vital parts of the human body, under chosen conditions of contact and resistance, must result in instant death.

If the question, here, were of the wisdom and advisability of the proposed change in the mode of inflicting the death penalty, the discussion might be prolonged; as we are confined to the question of the constitutionality of the statute which introduces the change, we deem further discussion unnecessary for 4303
the presentation of our views.

The order dismissing the writ of *habeas corpus*, and remanding the prisoner, must be affirmed.

[A COPY.] FRANK S. WRIGHT,
85 Genesee St., AUBURN, N. Y.

At a General Term of the Supreme Court of the State of New York, in and for the Fifth Judicial 4304
Department, held at the Court House, in the City of Rochester, Monroe County, on the 1st day of October, 1889.

Present:—

HON. GEORGE BARKER, *Presiding Justice.*

HON. CHARLES C. DWIGHT, *Associate Justice.*

HON. FRANCIS A. MACOMBER, *Associate Justice.*

4305

THE PEOPLE, EX REL. WILLIAM KEMMLER,
Appellant,
AGAINST
CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN PRISON,
Respondent.

An appeal having been taken from the order heretofore made by Hon. S. Edwin Day, County Judge

4306 of Cayuga County, remanding the relator, William Kemmler, to the custody of Charles F. Durston, Agent and Warden of Auburn Prison, having been brought on for argument, at a General Term of this Court, held in and for the Fifth Judicial Department of the State of New York, and after hearing Hon. W. Bourke Cockran, of counsel for the said relator, and Hon. Charles F. Tabor, Attorney-General, of counsel for the People of the State of New York, and for the said
4307 Charles F. Durston, as Agent and Warden, and due deliberation being had thereon,

It is Ordered, that the order made herein be, and the same is, hereby in all things affirmed.

Judgment signed this 2d day of January, 1890.

B. M. WILCOX,
Clerk Cayuga Co., N. Y.

4308 STATE OF NEW YORK, }
Cayuga County Clerk's Office, } ss.

I, Benjamin M. Wilcox, Clerk of the County of Cayuga, and of the Supreme Court of said State, and of the County Court of said County, each being a Court of Record and having a common seal, do hereby certify that I have compared the annexed and foregoing copy of order, with the original thereof, now remaining on file in my office, and that the same
4309 is a correct copy of such original, and of the whole thereof.

[SEAL.]

In testimony whereof, I have hereunto set my hand and affixed the seal of said county and of said courts, at Auburn, N. Y., this 2d day of January, 1890.

B. M. WILCOX,
Clerk.

SUPREME COURT. 4310

IN THE MATTER OF THE PROCEEDINGS UPON A WRIT OF HABEAS CORPUS, TO INQUIRE INTO THE DETENTION OF WILLIAM KEMMLER.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,
Appellant,

AGAINST 4311

CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN PRISON,
Respondent.

A writ of *habeas corpus* having heretofore been granted herein by Hon. Charles C. Dwight, a Justice of the Supreme Court, and directed to Charles F. Durston, Agent and Warden of Auburn State Prison requiring him to have the body of the said William Kemmler, together with the time and cause of im- 4312 prisonment of said Kemmler, before Hon. S. Edwin Day, County Judge of Cayuga County, at the Court House in the City of Auburn, Cayuga County, N. Y., and the said Charles F. Durston, as such Agent and Warden, having produced said Kemmler before the Hon. S. Edwin Day, County Judge of Cayuga County, in pursuance of the provisions of said writ, and having made return to such writ, and such return, having been controverted by said William Kemmler, 4313 and an order thereupon having been made, appointing Tracy C. Becker, of the City of Buffalo, attorney and counsellor at law, as Referee to take the testimony produced in support of or against the remanding or detention of the said William Kemmler; and the said Referee having thereupon been attended by counsel for the prisoner and by counsel for the said Agent and Warden and for the People of the State of the New York, and having taken such testimony and evidence

4314 and made return to the said Hon. S. Edwin Day, County Judge of Cayuga County; and the said Hon. S. Edwin Day, County Judge of Cayuga County, upon the return of such testimony and evidence, and upon the petition, writ of *habeas corpus* and the return of the said Durston thereto, having made an order that the said William Kemmler was duly and lawfully detained in the custody of the said Durston, as Agent and Warden of the said Auburn State Prison, by reason of the 4315 final judgment of a competent tribunal of criminal jurisdiction, to wit: a court of oyer and terminer, held in and for the County of Erie as set forth in said writ, and that the term of his imprisonment had not expired, and having ordered that the said William Kemmler be remanded to the custody of the said Agent and Warden of the State Prison at Auburn, which order was entered in the office of the Clerk of the County of Cayuga, on the 14th day of October, 1889: and an appeal having been taken by the said William 4316 Kemmler, relator, to the General Term of the Supreme Court, Fifth Department, from the order so made and entered as aforesaid, remanding the relator, William Kemmler, to the custody of the said Charles F. Durston, Agent and Warden of the State Prison at Auburn, and said appeal having come on to be heard at a General Term of the Supreme Court of the State of New York, held in and for the Fifth Judicial Department, at the Court House, in the City of 4317 Rochester, Monroe County, on the 1st day of October, 1889, and an order having been made by the said General Term, affirming in all things the order so made from which said appeal was taken, as hereinbefore referred to:

It is, on motion of Charles F. Tabor, Attorney-General, of counsel for the People of the State of New York, and for the said Charles F. Durston, as agent and warden of the State Prison at Auburn, ORDERED, ADJUDGED, DECREED AND DETERMINED, that said order heretofore made in this proceeding by the Hon. S. Edwin Day, County Judge of the County of Cayuga, remanding the said William Kemmler to the custody of the said Charles F. Durston, as Agent and Warden of the Auburn State Prison, be, and the same is, hereby in all things affirmed. 4318

STATE OF NEW YORK, }
CAYUGA COUNTY CLERK'S OFFICE. } SS. 4319

I, Benjamin M. Wilcox, Clerk of the County of Cayuga, and of the Supreme Court of said State, and of the County Court of said County, each being a court of record and having a common seal, do hereby certify that I have compared the annexed and foregoing copy of judgment with the original thereof, now remaining on file in my office, and that the same is a correct copy of such original, and of the whole thereof.

4320

[SEAL.] In testimony whereof, I have hereunto set my hand and affixed the seal of said County and of said Courts, at Auburn, N. Y., this 2d day of January, 1890.

B. M. WILCOX,

Clerk.

4321

SUPREME COURT.—GENERAL TERM.

FIFTH DEPARTMENT.

THE PEOPLE OF THE STATE OF NEW YORK, EX REL. WILLIAM KEMMLER,

Appellant,

AGAINST

CHARLES F. DURSTON, AGENT AND WARDEN OF AUBURN STATE PRISON, 4322

Respondent.

GENTLEMEN:

Please take notice, that the relator, William Kemmler, appeals to the Court of Appeals, from the judgment and order of the General Term, Supreme Court, Fifth Department, herein entered in the office of the Clerk of the County of Cayuga, on the 2d
4323 day of January, 1890, affirming an order of Hon. S. Edwin Day, County Judge of Cayuga County, remanding said relator to the custody of said Agent and Warden.

DATED, Buffalo, N. Y., January 15th, 1890.

Yours, etc.,

CHARLES S. HATCH,

Attorney for the relator, Kemmler.

4324

TO THE CLERK OF THE COUNTY OF CAYUGA COUNTY COURT, AND TO

HON. CHARLES F. TABOR, *Attorney General, Attorney for the Respondent,* AND TO

GEORGE T. QUINBY, *District Attorney Erie Co.,* AND TO

A. P. RICH, ESQ., *District Attorney Cayuga Co.*

APPENDIX.

RELATOR'S EXHIBIT "A."

The
Comparative Danger to Life
# of the
Alternating and Continuous
Electrical Currents.

THIRD EDITION OF FIVE THOUSAND

1

THE

COMPARATIVE DANGER TO LIFE

2

OF THE

ALTERNATING AND CONTINUOUS

ELECTRICAL CURRENTS 3

COPYRIGHTED 1889, BY HAROLD P. BROWN.

BY 4

HAROLD P. BROWN, ELECTRICAL ENGINEER,
45 & 47 WALL STREET,
NEW YORK.

5

PREFACE.

So many lives have been sacrificed by criminal economy in electric lighting that legislative control of the subject is imperatively demanded; but the public must first be shown where the danger lies, and how it can be avoided. To do this, 6 the writer asks for a careful reading of this pamphlet, since the experiments described and the conclusions reached have withstood the severest criticism and received the approval of the most prominent electricians. The safety devices suggested for arc-light circuits will, if adopted, make it almost impossible to produce death with the continuous current, at a pressure of 3,000 volts or less. The nature of the alternating current, however, is such that no possible precautions can afford protection to life, excepting the limitation of the pressure to 300 volts for all purposes excepting electrical executions of condemned criminals.

7 Accusations of "cruelty to animals" have been made on account of the necessary physiological experiments. But it must not be forgotten that the object in view was the saving of human life from an invisible and impalpable danger, and that the animals killed were previously condemned to die by more painful methods. As was the case when the "flash test" for kerosene or the water-gas regulations were agitated, the wealthy corporations interested denied the existence of danger and fought the investigation at every stage. Their slurs upon the writer's motives and professional standing have perhaps been answered with a trace of bitterness which any one knowing the facts will pardon. 8

The writer wishes to publicly express his thanks to Mr. Thos. A. Edison for the loan of instruments and laboratory for experiments upon this subject; to Mr. A. E. Kennelly for his kind assistance in electrical measurements, and to Dr. Frederick Peterson for his valuable physiological work.

HAROLD P. BROWN.

PREFACE TO THE THIRD EDITION.

Since the publication of this pamphlet, the writer has conducted for New York state officials, experiments upon dogs, calves and horses, with effects similar to those previously noted. This resulted in the formal adoption of 10
the alternating current for electrical executions, and the purchase of the apparatus for the purpose was placed in his hands. At this time the danger of the alternating current was admitted by all the prominent companies excepting the Westinghouse, which still protested that it was "safe." On this account, and because of the fact that twelve to fifteen men had been accidentally killed by this company's current, its apparatus was purchased for the 11
infliction of death upon condemned criminals. As soon as this fact became known, a vigorous attempt was made in the interest of "humanity" to have the execution law declared unconstitutional. Electricians in the employ of the company endeavored to prove by words and *not experiments* that one man or animal might, for some mysterious reason, be able to withstand an amount of 12
electrical horse-power which had in the same conditions killed others. It is with great pleasure that the writer observes that all this agitation has educated the public to deal cautiously with the alternating current, and this caution has undoubtedly saved many valuable lives.

13

14

HAROLD P. BROWN,

ELECTRICAL ENGINEER,

45 & 47 WALL STREET,

NEW YORK.

DESIGNER OF APPARATUS FOR SPECIAL PURPOSES.
CONTRACTOR FOR ARC AND INCANDESCENT ELECTRIC LIGHTS AND STEAM-POWER.
15
ELECTRIC EXPERT IN PATENT AND CIVIL CASES.

LIFE PROTECTING APPARATUS FOR ARC-LIGHT DYNAMOS.

CITY STREET LIGHTS TESTED AND COMPARED WITH CONTRACT REQUIREMENTS.

COMPLETE PLANTS ERECTED FOR CITY LIGHTING.

16

17

NOTE.—References to pages are retained herein as they are printed in the original of this Relator's Exhibit "A," and immediately following are inserted in brackets the pages where those references will actually be found in this Appendix—thus: (See page 28.) [See page xxxiii, App.]
T. C. B., *Referee.*

DURING the spring of the present year I became alarmed at the large number of deaths caused by careless methods and criminal economy, on the part of various electric-lighting companies using high-tension continuous and high-tension alternating currents, and after a 18
thorough investigation of the subject, I addressed the following letter to the editor of the *N. Y. Evening Post,* which was published in that paper, June 5th.

To the Editor of the Evening Post:

SIR: The death of the poor boy Streiffer, who touched a straggling telegraph wire on East Broadway, on April 15th and was instantly killed, is closely followed by the death of Mr. Witte, in front of 200 Bowery, and of William Murray, at 616 Broadway, on May 11th, and any day may add new victims to the list. After every such accident the newspapers clamor to have the wires 19
placed underground, while the electricians connected with the system at fault hold their peace or throw the blame on the telephone wires, until the matter has been forgotten. As an electrical engineer, I know that burying the wires would not remedy the trouble,* though it would largely diminish the risk, while the enforcement of a few common-sense regulations would make it almost impossible to kill a man from an arc-light current. It will not do for electricians to state that they "don't know what killed that man," for, unless they take prompt measures to make their business safe, some terrible accident will cause the adoption of laws to regulate electric lighting, which, being framed by their enemies, will cripple or destroy their business. 20

So, at the risk of offending some corporations having heavy investments in unsafe systems, I will venture to state a few facts, which I trust the press will be kind enough to publish widely, as no disinterested electrician will deny my statements.

It is well known that a continuous current of "low-tension," such as is used by the Edison Company for incandescent lights, is perfectly safe as far as life risk is concerned. From this fact the false popular impression has arisen that all incandescent systems are safe and all arc systems dangerous. But it is not to the "low-

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*Six deaths have occurred in Chicago from arc lights in spite of underground wires. See page 60. [See page lxix, App.]

21 tension" alone that this current owes its safety, since a factor fully as important is the even, steady quality of its delivery. That is, a current of "high-tension," but unbroken and continous, *may* be perfectly safe if properly operated, while a current of lower "tension," but wavy or pulsating, is *always* dangerous. And when these pulsations rise in speed and intensity, the danger increases, until the climax is reached in what is called "alternating current," in which impulses are given first in one direction and then in the other, several thousand times a minute.

To understand the reason for this, it is necessary to remember that when a current through a wire or other conductor is made or broken, a current in the opposite direction is "induced" 22 in any parallel conductor; the same effects are produced in a less degree when the first current pulsates, but are intensified when it is alternated or reversed in direction. Any one who has held the metal handles of a "medical" (Galvano-Faradic) battery, has had a practical experience of the power of induction and pulsation; in this apparatus the current from the battery itself is so feeble that it cannot be detected without the use of instruments, except by the metallic taste when the terminals are touched by the tongue. This insignificant current is passed through a short piece of insulated wire coiled around an iron core, and is interrupted by a rapidly vibrating armature, thereby inducing in another and 23 longer coil of wire surrounding the first, a series of shocks, whose intensity can produce most intense suffering, or even death, in a human being who forms a portion of the circuit. It is the rapid succession of shocks that kills, while a single steady impulse of the same intensity would do little damage.

Two of the leading arc-lighting systems have dynamo-electric generators provided with what are known as "open-circuit armatures," which produce a pulsating current somewhat similar in kind to the one just described, though a thousand times more powerful. It is to this current that nearly all the deaths caused by arc-lighting systems must be attributed. These "open-circuit-armature" systems were pioneers in electric lighting, and at the time 24 they were invented, it was supposed that the "closed-circuit armatures," which produce the steady and safer current, could not be made to develop sufficient electro-motive force to operate a number of arc lamps upon one circuit. But the recent advances in the science have made possible "closed-circuit-armature" generators, which give the same amount of current and electro-motive force, with a much less expenditure of motive power, so that there is now no valid reason for the existence of the old type, with its pulsating and dangerous current.

I do not mean to have it understood that the "steady" current is always safe, or that the "pulsating" is always unsafe, for any current with more than fifty arc lamps in series is dangerous and should be prohibited; while the "pulsating" current, if its circuit 25 is kept thoroughly insulated and carefully watched and tested every day, may run for years without a fatal accident. But the fact remains that the "steady" current, with fifty or less lamps in circuit, has had to my knowledge, but few victims against the scores killed and maimed by the "pulsating" current. And even these were responsible for their fate, since all were employees, and should have known better. Some of them tried to disconnect apparatus through which they knew the current was flowing, and thus got into the circuit, while the others received the full current while trying to repair broken wires, which were known to be charged.

26 But the persons killed by the other system, as a general thing, have been in no way responsible for the accidents that caused their death; they have, as did young Streiffer, touched or run against an apparently harmless wire when standing on a damp place, or have touched at the same moment some metal accidently charged with the fatal current, and some other conductor having a "ground" connection, as did Mr. Witte. I do not believe with extremists that the "pulsating" current should be prohibited, but I do think that conditions of safety should be rigidly enforced by the authorities.

If the circuit carrying the "pulsating" current is *perfectly insulated* at all times, no accident is likely to occur. But if, through 27 wearing of the insulation or a heavy rain, a connection between the circuit wire and the "ground" is formed, anyone who touches the wire and a "ground," will receive a portion of the current; if he happens to be near the other "ground," he receives but a small shock but if there are a number of lamps between him and the other connection, the shock may be fatal.

Of course the reply will be made that all the arc-lighting stations in this country use insulated wire, "as required by the underwriters," but here is just where a great mistake has been made, and the sooner this is corrected the better for the cause of electric lighting. It is an open secret among electricians that 28 the wire known as "underwriters' wire" has a very poor insulation, even when new and during dry weather, but practically *no insulation at all* during a rain. The paint dries out of it after a few months' exposure, other wires rubbing against it soon wear away the cotton and expose the metal, and it is altogther unfited for outdoor use. Among electric-lighting men it is appropriately called "undertaker's wire," and the frequent fatalities it causes justify the name.

Even with the most conscientious electric-light superintendent, who tests his circuit carefully for "grounds" every day before starting the dynamos, there is no surety that, during the run, some telegraph wire may not drop upon his circuits, wear away

29 the insulation, and set a death trap for the unwary, who may be miles away from an electric lamp. (See page 47.) [See page lv, App.]

The condition of the electric-light circuits in the lower part of the city is simply disgraceful, as has been previously pointed out. Most of them were first put up years ago; they have been cut and patched until full of joints, from which the tape flutters; the insulation is entirely worn off in places or hangs in shreds, and few circuits are fit to run with safety for a single hour. They cross and recross the structures of the elevated roads; they sag and sway in loose loops, and are intersected at all levels by telephone
30 and telegraph wires. On some of these circuits two or more dynamos are run in series, thus more than doubling the life risk, and it is almost certain that it was these overloaded circuits that killed Streifler and Witte.

If the Board of Electrical Control cannot force the wires underground, they can at least condemn these lines, which the companies can afterward utilize by re-insulating for their underground circuits. The underwriters ought to have an eye to this also; for every bare or poorly insulated spot is a menace to property as well as life.

But if "influence" prevents the wires from being replaced (and it seems to permit the extension of new wires elsewhere)
31 there are a few simple precautions which, if enforced, will make fatal accidents almost impossible. All the deaths due to arc lighting, as far as reported, have been caused by the victim's breaking the circuit and placing himself *in the break* to receive the fatal "extra current" thus caused, or by his making a "ground" connection with a circuit on which there was another "ground." Both of these dangers can be avoided by very simple apparatus.

If a voltameter, or a circuit of very high resistance, be connected across the poles of every arc-light dynamo, the external circuit may be opened without producing the death-flash, as most of the "extra current" will go through the by-pass. This would pre-
32 vent a large proportion of the fatal accidents. If every arc-light dynamo was also provided with a wire of very high resistance leading from the circuit to the "ground," upon which was interposed apparatus to *shut off the production of current* the instant a second "ground" occurred, no deaths could be caused except by foolhardy carelessness. The latter apparatus could also be used to shut down the current in case the external circuit should be broken.

With these precautions, and with the number of lamps limited to fifty on a single circuit, even the "pulsating" current would be fairly safe, but as the stations are now operated upon circuits with frayed and worthless insulation, they are a constant menace to all who walk the streets, use a telephone, or touch a wire.

In regard to the popular impression that all incandescent electric-lighting systems are safe, I am sorry to say that, recently, several companies, who have more regard for the almighty dollar than for the safety of the public, have adopted the "alternating" current for incandescent service. 33

If the "pulsating" current is dangerous, then the "alternating" can be described by no adjective less forcible than *damnable*. With the "pulsating" current, three contingencies must ordinarily arise to produce fatal results: There must be a "ground" connection on the circuit; a person must touch the circuit at some distance from the first "ground" and must, at the same instant, be in connection with the "ground" himself. But the "alternating" current produces fatal results by simply touching the two parallel wires, always close together, connections from which enter every house, or by touching a single wire *at any point* when standing on a damp place. Its supporters may say that on account of its danger they do not permit the "primary" or death current to enter the house, but supply the lamps from the "secondary" current. True, but between these two circuits is interposed nothing more than a thin layer of cotton or silk insulation, and, as has happened again and again, it requires but a flash of lightning, or a little moisture in the converting appartus, to bring the death-current to each lamp. 34

The only excuse for the use of the fatal "alternating" current is that it saves the company operating it from spending a larger sum of money for the heavier copper wires which are required by the safe incandescent systems. That is, the public must submit to *constant danger from sudden death*, in order that a corporation may pay a *little larger dividend*. I do not know of a single disinterested electrician of high standing who does not condemn the alternating system. Siemens & Halske, a firm of electricians with a world-wide reputation, have spent years of experiment upon it, but have abandoned it as unsafe, and say that its use should be prohibited by law. 35

Following the example of Chicago, the Board of Electrical Control should forbid the use of the fatal alternating current, and legislatures, city councils and life-insurance managers should see to it that stringent laws and regulations be passed to prevent this wholesale risk of human life. The placing the wires of the alternating system underground would only intensify the danger in houses where it might be used, while its use with underwriter's wire, in a city like this, is as dangerous as *a burning candle in a powder factory*. If the death of these three men can effect the adoption and enforcement of regulations similiar to the following, they will not have died in vain: 36

RULES FOR STATION LIGHTING.

Not more than fifty are lights shall be operated upon any one circuit, unless said circuit is used exclusively for street lamps

37 mounted upon wooden poles; in this case the number must not exceed sixty.

All outdoor arc-light circuits must be provided with waterproof covering having an insulation resistance of not less than one-eightieth megohm per mile per hundred volts. Any circuit falling below this must not be used until restored.

No arc-light dynamo shall be operated unless provided with a voltameter across its terminals, or other device to provide a path for the extra current caused by opening the external circuit.*

No arc-light dynamo shall be operated unless provided with means for automatically stopping the production of current the instant a ground connection is made upon its circuit.

38 No arc-light dynamo shall be operated unless provided with means for automatically breaking or short-circuiting the field circuit the instant the external circuit is broken, in order to prevent a current from being built up by the broken circuit ends falling upon some conductor.

No alternating current with a higher electro-motive force than three hundred volts shall be used.

HAROLD P. BROWN,
Electrical Engineer.

This letter was read by Commissioner Gibbens, at the meeting of the Board of Electrical Control on June 39 8th, and invitations were extended to the representatives of the various electric-lighting companies, to appear before the Board on July 16th, for discussion of the subject. At this meeting no opposition was met with from the arc-light people, and none of my statements concerning arc lighting were questioned. The representatives of the alternating-current companies, however, appeared in full force and presented lengthy papers and arguments, in which I was made the subject of the most violent personal abuse.

40 The most contradictory statements were made by such men as Prof. Henry Morton, M. M. M. Slattery, T. Carpenter Smith, S. C. Peck, and others. The contradictions were so marked, that the statements were condemned on their face as unreliable, and their only points of agreement were in their violent personal abuse of myself and the unanimity of their efforts to shield the alternating current from the threatened investigation.

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*The same result may be obtained by using an exciting dynamo on the field circuit.

Among other letters presented, was one signed by H. M. Byllesby, Vice-President of the Westinghouse Electric Co. (the principal promoter of the alternating current in this country), in which the unqualified statement is made that "the effect of the alternating current" (upon animal life) "is *immensely less* (sic) both as to burning and possible death, than the direct current of the same volume and pressure." This and other similar letters were published in the *Electrical World* of July 28th. 41

My professional knowledge and the correctness of my statements having thus been publicly assailed, both in these letters and in newspaper articles inspired by them, there remained but one course open to me. Argument was of no avail against people whose commercial interests led them to take advantage of the ignorance of the public upon technical matters. It was therefore incumbent upon me, in order to maintain my professional reputation, to substantiate my position by a series of practical demonstrations, which could be comprehended by the general public; 43 but to do this with scientific accuracy required apparatus which cannot be obtained at short notice in this country. 42

I therefore called upon Mr. Thos. A. Edison, whom I had never before met, and asked the loan of instruments for the purpose, which could not be obtained by me elsewhere. To my surprise, Mr. Edison at once invited me to make the experiments at his private laboratory, and placed all necessary apparatus at my disposal.

By means of a large number of experiments upon dogs (see Appendix, page 28,) [See page xxxiii, App.,] I determined, to the satisfaction of Mr. Edison and other prominent scientists, the exact pressure required to produce death with the continuous and with the alternating current. The result proved that the alternating current at 160 volts, *or less than one-sixth the pressure used for electric lighting* by the Westinghouse and other alternating current companies, was INSTANTLY FATAL: while, with the continuous current, *no injury whatever* resulted from a pressure of 1,420 volts. 44

45 In some of the early experiments with the continuous current (see page 29) [see page xxxiv, App.] a condition was produced analogous to the alternating current, which had fatal results at 800 and 1,000 volts; but when this condition was eliminated, so that an *absolutely continuous current* was dealt with, no injury resulted from 1,420 volts, as above stated.

Having thus established the truth of my statements, I determined to afford to my antagonists an opportunity to test in a public manner the accuracy of my results. Through the kindness of Professors Chandler and Laudy, 46 of the Columbia College School of Mines, I was allowed the privilege of using their lecture room and apparatus, which was supplemented by the necessary instruments from the laboratory of Mr. Edison.

A demonstration was made for the benefit of the Board of Electrical Control on the 30th of July. Invitations were sent to the Westinghouse and other alternating-current companies, especially requesting them to attend with 47 their own experts and electrical instruments for testing and verifying my measurements. At this juncture (as I am prepared to prove), representatives of a certain alternating-current company publicly declared that I would be prevented from completing my demonstrations, by reason of their having secured the intervention of the *Society for Prevention of Cruelty to Animals*. In presence of a large audience I commenced by administering a *continuous* current of 300 volts' pressure, to a large dog, increas- 48 ing the pressure in successive applications until 1,000 volts had been received by the subject without injury. I then requested the audience to name a pressure of *alternating* current which they believed would be *absolutely safe*. Some one present suggested 300 volts. I then applied an *alternating* current of 300 volts' pressure, which caused instant death. At this point the proceedings were stopped by an officer of the S. P. C. A., whereupon the advocates of the alternating-current system, having failed to accept my repeated invitations to come forward with their instruments to verify my measurements, endeavored by every possible means to discredit the results attained, even claiming that the animal was dead before the alternating current reached him. (See *Electrical World*, Sept. 8.) 49

Naturally, the treachery of which I was thus made the victim only strengthened my determination to substantiate my position before the public. I accordingly invoked the protection of Dr. Cyrus Edson and Dr. Chas. F. Roberts, of the Board of Health, under whose auspices, as vivisectionists, I would have the right to continue my 50 demonstrations uninterrupted. These gentlemen very cordially responded, and August 3d was fixed upon for the resumption of my work. In spite of the trickery of my opponents, I determined to take no unfair advantage of them, and therefore had invitations sent to Prof. Thomson and Dr. Moses, well-known exponents of the alternating system, to attend and bring their instruments. These gentlemen did not respond to my invitation, though I have since learned that the invitations reached them and 51 that they were in New York on the day named.

The following is a copy of the report of this second demonstration:

> At the School of Mines of Columbia College, this morning at 11 o'clock, experiments were undertaken at the request of Harold P. Brown, Electrical Engineer, to determine the danger of alternating currents, by Dr. Cyrus Edson and Dr. Charles F. Roberts, of the New York Board of Health. The first dog operated upon was a mongrel dog weighing 61 pounds, strong and in good condition. His height was 24 inches, length from tip of nose to 52 base of tail 42 inches, and resistance from the right front leg to the left hind leg 14,000 ohms. Connection was made by binding a piece of cotton waste saturated with water round the leg with No. 20 bare copper wire. The dog was placed in the cage and the alternating current applied by Dr. Roberts at 272.16 volts for five seconds; number of alternations 288 per second. The dog was silent and motionless during the continuance of the current. He gave a few spasmodic gasps 31 seconds after current was first applied, and heart ceased beating 90 seconds after current was applied. The dog was immediately dissected by Dr. Roberts and Dr. Peterson, and section of sciatic and pneumogastric nerves, muscular fibres of diaphragm and lungs placed under a micro-

53 scope, but no changes in structure were observed. The second dog was a full-blooded Newfoundland, strong and in good condition, weighing 91 pounds, length from tip of nose to base of tail, 48 inches. Height, 25 inches. Resistance, 8,000 ohms. Connection was made in the same manner as above. Alternating current applied by Dr. Roberts at 340.5 volts electro-motive force for five seconds. The dog was silent and motionless during continuance of current, howled and gasped for eight seconds after circuit was opened, but in the opinion of physicians present, this was purely mechanical action, as the dog was unconscious from the instant the current first reached him. Heart stopped beating in two minutes and fifty seconds after current was first applied. The third dog was a half-breed setter and Newfoundland, weighing 53
54 pounds, 42 inches long from tip of nose to base of tail, and 24 inches high. Resistance, 30,000 ohms. Connections were made in the same way as before. Dr. Roberts applied the alternating current at 220 volts for five seconds; the result was not fatal at four minutes afterward. Mr. Porter, Superintendent of Machinery of Columbia College, then suggested that, as the dog was rigid and motionless during the continuance of the shock, it would be impossible for a man in the same conditions to utter a sound or to break the contact in five seconds. Dr. Edson then determined to administer the current at same number of volts for 30 seconds on
55 this account, and on account of the high resistance of this subject This was done, and during the period of the 30 seconds the voltage rose to 234 volts. The dog died instantly without sound or struggle. The resistance after death was found to be 2,800 ohms. All of the physicians present expressed the opinion that a dog had a higher vitality than a man, and that, therefore, a current which killed a dog would be fatal to a man under the same conditions. It was their opinion that all of these deaths were painless, as the nerves were probably destroyed in less time than that required to transmit the impression to the brain of the subject.

The report was signed by the following gentlemen:

56 Dr. Cyrus Edson, *of the New York Board of Health.*
Dr. Charles F. Roberts, *Assistant Prof. Physiology, Bellevue Hospital Medical College.*
Dr. Frederick Peterson.
Dr. Frank H. Ingram.
Dr. H. A. Haubald.
Dr. Schuyler S. Wheeler, *Electrician Board of Electrical Control.*
Harold P. Brown, *Electrical Engineer.*
Mr. John Murray Mitchell.
Prof. C. E. Colby, *Columbia College.*
Capt. E. L. Zalinski, U. S. A.
Prof. L. H. Laudy, *Columbia College.*

August 3d, 1888.

To offset the damaging effect produced by this report 57
upon the interests of the alternating-current companies, they induced Dr. P. H. Van der Weyde to write a paper upon my *interrupted demonstration*, taking exception to every detail, and making absurd electrical blunders and assumptions. (See *Electrical World*, Sept. 8.) This remarkable paper was read amid great applause before the "National Electric-Light Association," which is now controlled by the alternating-current companies, and led to
the unanimous adoption by this "unprejudiced" body of 58
the following resolutions:

Whereas, The National Electric-Light Association read with some uneasiness the persistent effort of rival interests to educate the public to a distrust of high potential electric currents; and

Whereas, They would protest with all energy against recent efforts to pit against each other continuous and alternating-current systems of electrical distribution, which efforts have as their covert purpose the destruction of the harmony of action now existing between them; and

Whereas, This Association for mutual protection recognizes 59
distinctly the danger of unfair legislation, such as has destroyed the electric-lighting interest of Great Britain; therefore be it

Resolved, That the National Electric-Light Association emphatically declares that it is beyond doubt possible to produce and distribute high-tension currents for public use without any more danger or difficulty than attends the distribution of gas and water in our dwellings; and further, be it

Resolved, That they would impress all legislators with the fact that success in the electric light and power business is based chiefly upon economy in the size of conductors; and that, to utilize this fact, high-tension currents were adopted in the first 60
stages of development of electric lighting and have been used ever since, and will continue to be used; and further, be it

Resolved, That it is our conviction that there is no difference in the danger attending the use of continuous or alternating currents, and that both may be so transformed before being used as to render them perfectly harmless and tractable means of distributing electric power for use in cities.

A stinging reply to Dr. Van der Weyde was written by Mr. A. E. Kennelly, Mr. Edison's chief electrician (who took part in my experiments), which was published in the

61 *Electrical Review* of Sept. 22. I also published in the *Electrical World* of the same date, an article which concluded in the following words:

> If in spite of this, the arc-lighting companies prefer to put themselves by resolution upon a par with the alternating current in regard to danger, so much the worse for them. I understand that an official list of the persons killed and crippled by electric lighting is being made; in its present incomplete state it shows that the number of victims of the alternating current in this country is already far in excess of its proper proportion when compared with arc lighting, and this result is obtained from new 62 plants with presumably good insulation. It is by no means "an idle occupation," as Dr. Van der Weyde says, to bring these facts before the public, as human life is too valuable to be trifled with. Governor Cornell's letter (see Appendix, page 58), [see page lxvii, App.,] proposing to prohibit high-tension currents by law, is exactly what I predicted in my article in the *Post*, and it is the outcome of the persistent neglect of the electric-lighting companies to take all possible means to secure public safety.
>
> Each additional homicide caused by poor insulation, inadequate testing for grounds, or too high pressure, will be an argument in favor of legislative prohibition instead of wise legislative 63 regulation, which, not even an alternating-current "trust" of twenty millions can overcome.

The results of these tests, from a scientific point of view, were conclusive, as the electrical resistance of the animals operated upon averaged the same as that of the human body.

In their dire extremity, however, the alternating-current people, presuming upon the ignorance of the public, claimed that inasmuch as the heaviest dog killed weighed 64 but 91 pounds, the result could not be regarded as a criterion for the effect upon a human being.

I then found that the question of determining the best method of execution of criminals by electricity (under the law which goes into effect January 1, 1889,) had been referred to a special committee of the Medico-Legal Society. In order to prove the absurdity of the "weight" theory, I arranged for a further demonstration at Mr. Edison's laboratory, and invited the above-mentioned committee and the Hon. Elbridge T. Gerry, the author of the electrical execution law. A strong and vigorous horse, weighing 1,230 lbs., and two calves, weighing respectively 124½ and 145 lbs., were killed by the *alternating* current at 700, 770 and 750 volts. (See report on page 55.) [See page lxiv, App.] 65

This so impressed the committee with the death-dealing qualities of the alternating current, that they drew up the report given below, recommending its adoption for the execution of criminals, *at exactly the pressure* used for "safe and harmless" electric lighting by the Westinghouse and other alternating-current companies. At the society's meeting, on Dec. 12th, this report was *unanimously adopted*, after the representatives of the alternating-current companies had been given ample opportunity to defend their claims. 66

The following is a copy of the official report:

Report of the Committee of the Medico-Legal Society on the Best Method of Execution of Criminals by Electricity. 67

INTRODUCTORY.

In the six weeks that have elapsed since the preparation of our original report to the Society we have made further valuable experiments, and although our report had not as yet been officially printed, we have received so many useful suggestions and criticisms upon such portions as had been given to the public in the press—both through correspondents and through discussions in various papers and journals—that we are enabled to present at this meeting a fuller and more explicit expression of our opinions. The additional light thrown upon a difficult problem has permitted us to make a few slight alterations in our earlier report, and to subjoin an appendix for the better elucidation of the subject. 68

THE REPORT.

To the President and Members of the Medico-Legal Society:

Your Committee, appointed at the September meeting to consider and advise upon the proper method of executing criminals by electricity, reports as follows:

The law recently passed by the Legislature of the State of New York, providing for the administration of capital punishment by electricity, goes into effect January 1st, 1889. All murderers

69 sentenced to death for crimes committed on or after that date are to die by this means. As the use of electricity is an entirely novel method of putting to death human individuals, the manner of the application of the lethal current requires some thoughtful care and study.

The Commission appointed by the Governor to examine into various methods of causing death, which should be more humane than hanging, decided upon electricity. This Commission caused certain experiments to be carried out upon dogs, by which it was proven that electricity will produce certain and instantaneous death. In these experiments the animals were placed in a zinc-lined box half filled with water connected with one pole, while 70 the other pole, in the shape of a wire, was wound around the nose or inserted into the mouth. There are no data as to the amount or kind of electricity employed. This method, although successful, is hardly applicable to a human being.

Some experiments were conducted by one of our Committee (Dr. J. Mount Bleyer), and reported in the *Humboldt Scientific Library*, March, 1887; and during the past summer a series of thirty or more careful experiments were made upon dogs with death currents at the Edison laboratory, in New Jersey, by Messrs. Harold P. Brown and A. E. Kennelly and the Chairman of this Committee (Dr. Frederick Peterson) all of which are of 71 particular value to us in suggesting the proper method of executing criminals by electricity. These last were published in detail in the *Electrical World*, August 8th, 1888, and from them we have ascertained the following points:

The resistance of these dogs was measured and found to vary from 3,600 to 200,000 ohms, depending upon the differing thicknesses of skin and hair, and the amount of moisture between the skin and the electrodes. The amount of electro-motive force was also accurately determined, and it was found that, with the alternating current, as low as 160 volts was sufficient to kill a dog, and that with the continuous current a much higher voltage was necessary for the production of a fatal effect.

72 There are several points requiring thoughtful consideration in the application of death currents to man, which we now proceed to lay before you.

The average resistance of the human body is about 2,500 ohms. The most of this resistance is in the skin. It is evident, therefore, that the larger the surface of the electrode applied to the body, the less will be the resistance. But it is also a fact that the density of the current depends upon the superficial area of the electrode. With a pole of small diameter the passing current will be more dense than when an electrode of large sectional area is applied.

We think that immersion of the body in a large quantity of water to act as one pole, or the placing of large metal plates upon

any part of the body, should be put entirely out of consideration. 73
It is further well known that, if metal be directly in contact with the skin during the passage of an electric current, burns and laceration are apt to be produced.

We believe that all means hitherto suggested are open to criticism upon these grounds. The posture of the criminal requires also some discussion at our hands. We think there are serious objections to the employment of any apparatus in which the prisoner takes a standing position. There are so many histories of unseemly struggles and contortions on the part of criminals executed by the old methods, that the necessity of some bodily restraint is evident. Furthermore, the possibility of a 74
tetanic contraction of the body from the shock of the current is to be borne in mind. In our opinion, the recumbent or the sitting position is best adapted to our purpose.

Another question of importance is to which part of the body the two poles should be applied. There can be no doubt that one electrode should be in contact with the head. The other might be placed upon any portion of the body, upon the trunk or extremities, but there are obvious reasons why the neighborhood of the spinal cord would be more advantageous. The electric current, in passing through the body from one pole to another, undergoes more or less diffusion through the tissues. A current passing from the top of the head to the small of the back will be diffused 75
throughout a great part of the brain, and all of the tissues of the neck. The medulla oblongata—a part of the brain which is most vital—together with all the nerves of the neck and the spinal cord, which exercise jurisdiction over the lungs and heart, will be thoroughly permeated by the current applied in this way. As the seat of consciousness is in the brain, and particularly in the cortex of the cerebrum, it is clear that this faculty of the mind will suffer at once if the current be sufficiently strong. The electric stream flows from the positive to the negative pole, and there might be some possible advantage in placing the positive pole on the vertex of the head, near the center of consciousness, although death in 76
any case will be instantaneous.

After mature deliberation we recommend that the death current be administered to the criminal in the following manner:

A stout table covered with rubber cloth, and having holes along its borders for binding, or a strong chair, should be procured. The prisoner lying on his back, or sitting, should be firmly bound upon this table, or in the chair. One electrode should be so inserted into the table, or into the back of the chair, that it will impinge upon the spine between the shoulders. The head should be secured by means of a sort of helmet fastened to the table, or back of chair, and to this helmet the other pole should be so joined as to press firmly with its end upon the top of the head. We

77 think a chair is preferable to a table. The rheophores can be led off to the dynamo through the floor or to another room, and the instrument for closing the circuit can be attached to the wall.

The electrodes should be metal, between one and four inches in diameter, covered with a thick layer of sponge or chamois skin.

The poles and the skin and hair at the points of contact should be thoroughly wet with a warm aqueous solution of common salt. The hair should be cut short. Provision should be made for preventing any moisture reaching from one electrode to the other.

A dynamo capable of generating an electro-motive force of at least 3,000 volts should be employed, and *a current used with a potential between 1,000 and 1,500 volts*, according to the resistance of the criminal.

78 The *alternating current* should be made use of, with alternations not fewer than 300 per second. Such a current allowed to pass for from 15 to 30 seconds will insure death.

Attached to this official report was an appendix, as follows:

79

APPENDIX

TO REPORT OF MEDICO-LEGAL SOCIETY COMMITTEE.

We append here the experiments in abbreviated tabular form upon which we have based our conclusions:

Experiments with Death-Currents by Messrs. Brown and Kennelly and Dr. Peterson at the Edison Laboratory and at Columbia College.

80

	POUNDS WEIGHT.	OHMS RESISTANCE.	CHARACTER OF CURRENT.	VOLTAGE.	DURATION OF CONTACT.	RESULT.
Dog No. 1	10	7,500	Continuous	800	2 seconds	Death
“ “ 2	20	8,500	Alternating	800	3 “	Death
“ “ 3	13½	6,000	Continuous	1,000	instantaneous	Death
“ “ 4	46½	11,000	Alternating	800	2½ seconds	Death
“ “ 5	50	6,000	Continuous	1,000 1,100 1,200 1,300 1,400 1,420 and 1,200	6 instantaneous shocks, the last 2½ seconds	Unhurt
“ “ 6	55	3,600	Alternating	570	3 seconds	Death
“ “ 7	41½	14,000	Alternating	250	5 “	Death
“ “ 8	56	27,500	Alternating	160	5 “	Death
“ “ 9	59	5,000	Alternating	260	5 “	Death
“ “ 10	76	15,000	Alternating	330	3 “	Death
“ “ 11	61	14,000	Alternating	272	5 “	Death
“ “ 12	91	8,000	Alternating	340	5 “	Death
“ “ 13	53	30,000	Alternating	220	30 “	Death

(See page 28.) [See page xxxiii, App.]

EXPERIMENTS CONDUCTED BY MR. A. E. KENNELLY AT THE EDISON LABORATORY. 81

	POUNDS WEIGHT.	OHMS RESISTANCE.	CHARACTER OF CURRENT.	VOLTAGE.	DURATION OF CONTACT.	RESULT.
Dog No. 14	21½		Alternating	205	3 seconds	Death
" " 15	19½		Alternating	176	15 "	Death
" " 16	39½		Alternating	178	15 "	Death
" " 17	57½		Continuous	400	40 "	Death
" " 18	18½		Alternating	140	45 "	Death
" " 19	20	8,000	Alternating	255	35 "	Death
" " 20	16½	4,200	Alternating	418	2 "	Death
" " 21	37½	200,000	Continuous Alternating	304 100	30 " 65 "	Unh't
" " 22	12½	4,000	Alternating	500	30 "	Death
" " 23	33	11,000	Alternating	536	1½ "	Death
" " 24	10	9,700	Alternating	517	1 "	Death 82

Objections having been made to the dogs on account of the small weight of the animals, the following larger animals were experimented upon by Mr. Harold P. Brown before your committee.

EXPERIMENTS CONDUCTED BEFORE THE COMMITTEE OF THE MEDICO-LEGAL SOCIETY AT THE EDISON LABORATORY DEC. 5TH, 1888, BY MR. HAROLD P. BROWN.

	POUNDS WEIGHT.	OHMS RESISTANCE.	CHARACTER OF CURRENT.	VOLTAGE.	DURATION OF CONTACT.	RESULT. 83
Horse	1,230	11,000	Alternating	700	25 seconds	Death
Calf	124½	3,200	Alternating	770	8 "	Death
Calf	145	1,300	Alternating	750	5 "	Death

Details in *Electrical World*, Dec. 15. (See page 55.) [See page lxiv, App.]

In most of the dogs, the poles were bare copper wire around wet cotton waste, wound about a fore, and opposite hind, leg. Poles the same in the horse, but applied to both fore-legs. In the calves, sponge-covered metal electrodes were applied, one to middle of forehead and one near the spine between the shoulders. 84

Death with the alternating current was without a struggle; with the continuous, painful and accompanied by howling and struggling.

In the earlier experiments, where the alternations were from 660 to 4,100 per minute, the voltage was higher. In most of the experiments the alternations were made from 12,000 to 17,280 per minute, and the number of volts electro-motive force required was decreased.

It was suggested to us that the current should be applied through wristlet electrodes. Acting upon this idea, we caused the poles to be applied to the fore-legs of the horse, but were disappointed in the result. This method seemed not nearly as effective

85 as our own suggestion of application to the head and back, as was illustrated in the speedy and easy death of the two calves.

Mr. Elbridge T. Gerry, Chairman of the Commission appointed by the Governor, whom we invited to accompany us and witness the latest experiments, has suggested that clock-work be employed to make and break the circuit when criminals are executed in this manner, and we think this a matter worthy of the attention of those who are to carry out the requirements of the law. His request, that we specify more particularly the kind of apparatus needed, has led us to make inquiry in this direction. Relative to this matter, Mr. Harold P. Brown, who, by his numerous physiological experiments with death currents, and his high attainments 86 in this department of science, is pre-eminently qualified to speak with authority upon this subject, recommends as follows:

"I think a portable steam engine of three horse-power with a dynamo-electric generator of the alternating type, self-exciting or with a small exciter, would be preferable. I approve fully the recommendations of your committee in regard to the electro-motive force and other details. In my opinion $5,000 would cover the cost of this apparatus."

If any doubt should exist in the minds of some that electricity would not necessarily be fatal to man because it has been successfully applied to lower animals, we have but to call attention to 87 the fact that, since 1883, some 200 persons have been killed, as we are credibly informed, by the handling of electric-lighting wires.

As most of these people were killed probably by contact of the hands with the wires, it shows that in man, at least, death is rapid in this manner. Hence the suggestions made to this Committee as to the use of wristlet electrodes, have their value; and it is possible that this method, with the prisoner fastened in a chair, may ultimately prove the most desirable, as doing away with a complication of appliances and lending greater simplicity to the procedure.

FREDERICK PETERSON, Chairman,
88 R. OGDEN DOREMUS,
FRANK H. INGRAM,
J. MOUNT BLEYER.

Even this did not discomfit them, for Mr. Geo. Westinghouse, Jr., President of the Westinghouse Co., published in the N. Y. papers, as "paid reading matter," the following letter, upholding his high-tension alternating current as "less dangerous than the continuous":

89

ELECTRIC LIGHTING—ALTERNATING VS. DIRECT CURRENTS.

To the Editor of the Evening Post:

DEAR SIR: I have been favored by a correspondent with an article printed in your paper of a recent date, describing an experiment made by one Harold P. Brown, at the Edison laboratory, in Orange, N. J., with the alternating current; and as your journal and others are likely to be misled, the public interests injured, and very extensive vested interests also injured, I think it due to those whom I represent to ask the indulgence of your columns for some remarks on that subject.

90 It is generally understood that Harold P. Brown is conducting these experiments in the interest and pay of the Edison Electric Light Company; that the Edison Company's business can be vitally injured if the alternating current apparatus continues to be as successfully introduced and operated as it has heretofore been, and that the Edison representatives, from a business point of view, consider themselves justified in resorting to any expedient to prevent the extension of this system.

To show the absurdity of connecting the experiments made at Mr. Edison's laboratory at Orange, N. J., with the commercial use of electric currents, it is only necessary to call attention to the manner in which the current was applied. To use a simple illus- 91 tration: A piece of lead weighing one ounce may strike the human body with great force in any one of 100 places, without producing any permanent injury, and even when fired from a rifle must enter one of the few vital parts to have fatal effect, although, when so directed, it is perfectly easy to produce instantaneous death. The method of applying the current used in these experiments was carefully selected for the purpose of producing the most startling effects with the smallest expenditure of current, and regardless of any connection between the nature of the current and the special and extraordinary means used to apply the current for these experiments. The parts brought under the action of the current were not only those most easily affected by 92 it, but were so carefully placed in the circuit as to receive a shock, such as would be utterly impossible if the current were applied in any ordinary or accidental manner. In order to injuriously affect any organ of the body, it is necessary that a certain quantity or volume of current pass through it for a greater or less time, dependent upon the amount of the current. To thoroughly appreciate the case, it must be understood that the current is increased to a given pressure, in exactly the same proportion as the resistance offered to its passage is reduced. It was for this reason that a vital part of the body was selected (in the experiments at Mr. Edison's laboratory) that could be reached by the

93 current without traversing any considerable portion of the body, and in addition to this, the resistance of the contacts was made as low as possible, by giving them a large surface and moistening the parts where the electrodes were applied. The result of this carefully arranged plan was, that a large quantity of current was made to pass through sensitive portions of the brain and spinal chord. The same current applied to any other portion of the body would not have been likely to produce any injurious result, and, moreover, in order to produce such a current it would have been necessary to very greatly increase the electro-motive force, so that, instead of 700 volts, as claimed in the case of these experiments, several
94 thousand would have been necessary to have the same effect. The usual points of contact in accidental shocks received from electric circuits are through the hands, or some other portion of the body protected by tissues of greater or less thickness, and, as a matter of experience, it has been found that pressures exceeding 1,000 volts can be withstood by persons of ordinary health, without experiencing any permanent inconvenience. Further, the alternating current is less dangerous to life, from the fact that the momentary reversal of direction prevents decomposition of tissues, and injury can only result from the general effects of the shock; whereas, in a con-
95 tinuous current there is not only the injury from the latter cause, but a positive organic change from chemical decomposition, much more rapid and injurious in its effects. A large number of persons can be produced who have received a 1,000 volt shock from alternating currents without injury, and among them, a wire-man became insensible, and held his hand in contact with the wires for a period of three minutes without fatal results—in fact, was able to go on with his work after a short period.

We have no hesitation in charging that the object of these experiments is not in the interest of science or safety, but to endeavor to create in the minds of the public a prejudice against the use of the alternating currents. The Edison Company, who are
96 to be benefited by the dissemination of literature of this character, in their annual report, issued this fall, show that during the past year they sold of their continuous current 230-volt apparatus, for central stations, to the extent of 44,000 lights for the current year. The Westinghouse Electric Company, during the month of October, 1888, alone, received orders for 48,000 lights for central station use on the alternating current system, 25,000 of which were for use in London, where the laws with reference to the distribution of electricity are more carefully scrutinized than they ever have been in this country. Since the Westinghouse Electric Company began its business, it has sold more central station plants on the alternating current system than all of the other electric companies

in the country put together have of the continuous current system. 97
This large business has been mainly due to the fact that the alternating current system permits the use of an electro-motive force which brings the price of incandescent lighting within the reach of the multitude, and enables central station companies to distribute their current over any desired area, such as, for instance, the city of New York and other large places.

One word more with reference to the alternating system: It not only permits the use of current of 1,000 volts for street mains, but requires its conversion into currents of fifty volts or less, for house wiring. The converters are so constructed that the primary or street current can never, by any possibility, enter the house.
With the Edison system, the pressure is about 230 volts; and 98
while no person coming in contact with the alternating current, as used for domestic lighting, would be aware of its presence, with the Edison system the shock would be painful, if not absolutely dangerous, if the person were at all delicate.

We believe there should be reason and right in all things, and that this company is perfectly justified in drawing the attention of the public to the reasons why Harold P. Brown conducts his experiments with alternating currents in the manner stated, at the laboratory of Mr. Edison, since, if that company cannot counteract the inroads made into their business by the alternating
system, they must necessarily continue to occupy an inferior place, 99
and the protection of their vested interests has led them to use, as correct and proper, any methods that under other circumstances would hardly be resorted to. The Westinghouse Electric Company has introduced its alternating system at the present time into 130 central stations in this country and Canada, all within the brief period of two years. Thirty-six of these stations have increased their plant by ordering additional apparatus from this company, after having started with their initial order; and we feel justified in saying that, in addition to our own experience with the alternating system, the business would not have had this enormous and rapidly increasing growth, if there had been con-
nected with it the dangerous features which Mr. Harold P. Brown 100
and his associates of the Edison Company so loudly proclaim.

Finally, we shall be glad to have you send an expert connected with your valuable paper, who is disinterested and competent, to investigate free from prejudice, the subject of the alternating and continuous currents. We will afford him every opportunity to satisfy himself of the vast superiority as to safety and economy of the alternating system. Yours truly,

THE WESTINGHOUSE ELECTRIC COMPANY,

GEO. WESTINGHOUSE, JR., President.

Pittsburgh, Pa., December 10, 1888.—Adv't.

101 I refrain from criticising the commercial and economical statements made by Mr. Westinghouse, but in the light of Prof. J. E. Denton's *suppressed report* upon the Westinghouse electric-lighting system, I will only answer in Prof. Denton's own words: "I am a *little blue* about our ability to enthuse upon the *equality of the Westinghouse system*, considering small differences of efficiency, notwithstanding first cost advantages." If Mr. Westinghouse's statements are true, why does he still delay publishing
102 this interesting report unless he fears it would prevent the public from purchasing his stock and apparatus?

The object of Mr. Westinghouse's attack will be evident, when it is considered that his company is attempting to introduce in all parts of the country, what is now well known as the "deadly alternating current" in connection with his so-called system of electric lighting. I have already demonstrated conclusively, from a scientific point of view, that the high-tension alternating current is
103 *infinitely more dangerous* than the continuous current in use by the continuous current companies, and it is now a well-known fact that the latter current, excepting from very high tension *arc* circuits, has never caused *even the slightest injury*, while there are many cases on record where the alternating current has caused *instant death*, and others where the victims have been hopelessly crippled for life. Although these facts are undoubtedly well known to Mr. Westinghouse, he continues to advertise his alternating
104 current as "less dangerous than the continuous."

The absurdity of his illustration is obvious. He argues that a bullet "may strike the human body in any one of 100 places without producing any permanent injury," and applies the analogy to electricity. But he fails to comprehend that electricity is *diffusive* while *lead is not.* The injury from a bullet is usually confined to the locality penetrated, while a current of electricity is diffused through the entire body. In order to prove the diffusive character of the current, the alternating current

was passed through the two forelegs of a horse, in at one 105
foot, and out at the other; the horse was killed, showing that the current was disseminated through the vital organs, although, according to Mr. Westinghouse, he should not have been injured; in fact, Mr. Westinghouse ignores the experiment with the horse altogether in his plaintive wail concerning unfairness. Both with the horse and with all the dogs the current was passed through the legs and yet was fatal. I defy Mr. Westinghouse to cite a
single case of death by "decomposition of tissue;" even 106
were this possible, the alternating current *also produces decomposition* when passing through an electrolyte; a fact to which I have already had occasion to call attention. (See page 49.) [See page lvii, App.]

Mr. Westinghouse will argue that the wires carrying this dangerous current are protected by insulation, and that the pressure of the deadly current is reduced by a "converter" before it enters a building. The great danger, how-
ever, is that, no matter how well constructed and insulated 107
the alternating current conductor may be, experience has shown that a telegraph or telephone wire will soon wear off the insulation by abrasion; contact is then made with the alternating wire, and the death-dealing current is thus brought into our homes and offices. Another, and even greater source of danger is the *enormous leakage* from an alternating current conductor, in spite of the insulation. I have known of instances where contact with these wires,
by touching a wet pole or a loose wire, would instantly kill 108
anyone standing on damp ground. (See page 47.) [See page lv, App.]

A significant feature of Mr. Westinghouse's letter is his asking the editor for "the indulgence of his columns," in connection with the fact that the word "adv't" appears after his signature.

To test his sincerity in the matter, I published the following challenge in the morning papers of Dec. 18th:

109

AN ELECTRICAL DUEL.

To the Editor of the New York Times:

SIR: There appeared in the morning journals of the 13th inst. a letter addressed "to the public" over the signature of "The Westinghouse Electric Company, by George Westinghouse, Jr., President," and inserted in the form of paid advertisement, attacking not only the conclusions resulting from my recent experiments in Mr. Edison's laboratory, but severely criticising the resultant action of the Medico-Legal Society in recommending the adoption of the alternating current for the execution of criminals. First, allow me to deny emphatically that I am now or ever have been in the employ of Mr. Edison or any of the Edison companies. 110

Ignoring the commercial statements contained in Mr. Westinghouse's advertisement, which are foreign to the one question of interest "to the public," and the inaccuracy of which is accounted for by the effect upon Mr. Westinghouse's pecuniary interests by the condemnation of the death-dealing alternating current, the situation is, briefly, this: Mr. Westinghouse asserts that the alternating is less dangerous than the continuous current, but has *failed to prove it.* I, on the contrary, have claimed that the alternating is far more dangerous than the continuous current, and have *publicly proved my claims* by numerous practical demonstrations, during two of which (in Columbia College) the alternating 111 current people were invited and urged to test the correctness of my experiments, measurements, etc., with their own instruments, *which they failed to do.*

I am prepared further, to prove my theory in practice by records of a large number of deaths already caused by the alternating current, and to prove by affidavits and otherwise that this same current has already in numerous instances crippled, paralyzed, or otherwise injured for life a number of men, several of whom are now pensioned by the alternating current interests. Notwithstanding all this, for reasons of a merely selfish commercial nature, Mr. Westinghouse advertises the death-dealing alternating current as less dangerous to life and limb than the continuous current. 112

I therefore challenge Mr. Westinghouse to meet me in the presence of competent electrical experts and take through his body the alternating current, while I take through mine a continuous current. The alternating current must have not less than 300 alternations per second (as recommended by the Medico-Legal Society). We will commence with 100 volts, and will gradually increase the pressure 50 volts at a time, I leading with each increase, until either one or the other has cried enough, and publicly admits his error.

Yours respectfully,

HAROLD B. BROWN,
ELECTRICAL ENGINEER,
201 West Fifty-fourth Street.

It is unnecessary to say that this challenge has *not* been accepted. Now, if Mr. Westinghouse *believes* that "pressures exceeding 1,000 volts (alternating current) can be withstood by persons of ordinary health without experiencing any permanent inconvenience," as stated in his manifesto, he would instantly accept my challenge. He is willing enough to *risk the lives of the public* by stringing his death-carrying wires recklessly through our streets, but he knows too much to place his own life at the mercy of the deadly alternating current. I am told that, although living within reach of an alternating current station, he has preferred to use the continuous current in his own house. 113 114

The following editorial comment from the New York *Tribune*, of Dec. 10th, is indicative of the effect which this agitation has had upon public sentiment:

> The experiments at Orange to determine the amount of electricity required to produce death were interesting in more ways than one. They proved that there will be no difficulty in applying the electric current as a substitute for the hangman's rope, in accordance with the law passed by the legislature of 1888, which will apply to murderers whose crimes are committed after the coming New Year's Day. They also showed that less than half the pressure used for electric lights in our streets is sufficient to produce instant death. Evidently the danger from electric light wires has not been over-estimated. 115

In conclusion, I desire again to call attention to the fact that the special danger in the use of the high-tension alternating current lies in the fact that its physical effect on the nerves is infinitely more powerful than the continuous current at the *same* pressure, and the rapid alternations place the insulation of its conductors under a *tremendous strain* similar in effect to that produced by what is known as "water-hammer" in pipes. This strain causes leakage from the wires to ground, which I find upon careful measurement is sufficient to kill or cripple any person standing on a damp place and touching either wire, and the danger increases in direct proportion to the 116

117 length of the wire and the dampness of the day. That this danger is not imaginary, is shown by over fifteen deaths and a large number of serious injuries within the past year from this very cause, and many of these cases were *not* electric light employees. In every city having a large alternating current station many crippled pensioners of the same can be found. The most serious cases of injury are those of the son of Prof. Young, of Princeton College, who was totally paralyzed by standing on a ground con-
118 nection while touching a Westinghouse alternating current wire; and Mr. W. J. Bell, of St. Paul, whose nervous system was completely shattered by touching a guy wire on a district telegraph pole, which happened to be in contact with a Westinghouse alternating current wire some distance away. In this case the "insulation" of the alternating current wire was apparently perfect. These unfortunate gentlemen have experienced "permanent inconvenience" from the deadly alternating current, for
119 which the large sum paid to at least one of them is no adequate compensation. It is not an uncommon thing for telephone and district telegraph apparatus to be burned by their wires coming in contact with the alternating current conductors; any person who then touches the telephone or call box runs a terrible risk. *This brings the danger home to nearly all of us.* The question then arises: What is the remedy? Simply the limitation of the pressure to 300 volts or less, which will then make the altern-
120 ating current no more dangerous to the general public than the arc light current; the leakage to earth would then be less than the pressure required to kill.

HAROLD P. BROWN,
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201 West Fifty-fourth Street.

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APPENDIX.

EXPERIMENTS WITH ELECTRIC CURRENTS ON DOGS.

BY HAROLD P. BROWN.

In these experiments the following instruments were employed:

A dynamo of the Edison type, capable of giving an E. M. F. of 1,500 volts or less, with variable resistance in the shunt field circuit. 122

One voltmeter of the Howell type, 800 to 1,500 volts.

One Ayrton & Perry spring voltmeter, 30 to 130 volts.

Two French (Carpentier) voltmeters, maximum 140 volts.

One ammeter, graduated to $\frac{1}{50}$ ampère, maximum one ampère.

The electrical connections employed in these experiments are given in the accompanying diagrams. Fig. 1 shows the connections for the 5th, 6th, 7th and 8th experiments, in which the lamp resistance is placed in shunt with the body of the dog. Fig. 2 shows the relay connections in the remaining experiments wherever mentioned, the lamps being now in series with the body of the dog. In the diagrams, *D* represents the dynamo; *S*, resistance in field; *R*, relay; *b*, back contact; *f*, front contact; *l*, 97 volt lamp 123 in shunt with relay magnets; *L*, eight 97 volt lamps in series; *N*, ammeter; *V*, voltmeter; *K*, key.

First Experiment.

Dog No. 1. Old black and tan bitch; low vitality; weight not taken (about 10 lbs.). Resistance from right front leg to left hind leg, 7,500 ohms. Connection made through roll of wet cotton waste, held in place by wrappings of bare copper wire; continuous current used, with no provision for taking the extra current from field caused by breaking circuit through dog; no load on 124 dynamo.

E. M. F. at time of closing circuit, 800 volts; time of contact through dog, 2 seconds; current started at 0.1 ampère, and rose rapidly to 1 ampère; time of experiment, 10:06 P. M., July 10, 1888.

Behavior of dog: Howled vigorously and made violent efforts to escape, showing that it had control of muscles, and that nerve functions were not destroyed. Howled loudest as circuit was broken. Continued howling and rushing about for two and a half minutes after circuit was opened, then dropped upon its side. Pulsation of heart detected till 10:21 P. M.

125

Second Experiment.

Dog No. 2. Large half-bred St. Bernard puppy; strong and in good condition. Weight not taken (about 20 lbs.). Resistance from right front leg to left hind leg, 8,500 ohms. Connections made as above and wet after first and second trials as well as before first trial. Continuous current used with no provision for taking the extra current from field caused by breaking the circuit through dog; no load on dynamo.

E. M. F. at time of closing circuit, 290 volts. Time of contact through dog, 2 seconds. Current, 0.1 ampère. Time of experiment, same evening as above. 126

Behavior of dog: Howled during time of contact and tried to escape. Easily quieted and entirely uninjured.

Third Experiment.

Same dog as second experiment. Same connections. Alternating current used by introducing a circuit breaker and alternator in circuit with the dog. No provision for taking extra current from partial discharge of field, and no load upon dynamo.

E. M. F. at time of closing contact through dog, 290 volts. Number of alternations, 660 per minute. Time of contact through dog, 2 seconds. Current, no reading could be made. Time of experiment, same evening as above. 127

Behavior of dog: Was made perfectly rigid during time of contact, unable to howl or move until current was broken, then howled and made feeble efforts to escape. Continued whining until third trial. A longer time of contact was decided upon for next trial, since the circuit breaker and alternator made contact during but a small portion of each revolution.

Fourth Experiment.

128 Same dog and same connections. Alternating current as in previous trial. No provision for taking extra current and no load upon dynamo.

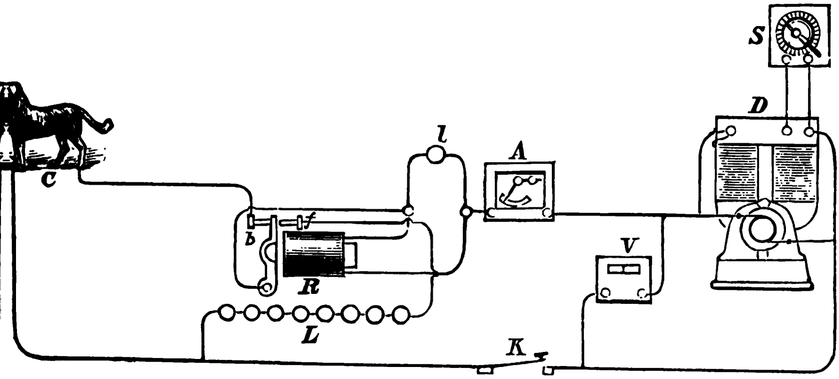
E. M. F. at time of contact, 800 volts; number of alternations, 1,600 per minute; current, no reading could be made.

Length of contact, 3 seconds; time of experiment, same evening as above.

Behavior of dog: Was turned into rigid mass during contact no motion nor tremor visible; at opening of circuit it fell with all muscles limp, howled faintly with a single expulsion of breath, and died in fifteen seconds after circuit was closed. Muscles remained limp after death, while muscles of first dog were stiffening.

Fifth Experiment. 129

Dog No. 3. Fox terrier bitch, young and of good vitality; weight, 13½ pounds; height, 13 inches; length from tip of nose to base of tail, 24 inches. Resistance, 6,000 ohms. Connections made as above and kept thoroughly wet. A relay was provided to close circuit upon a series of lamps as soon as circuit through dog was opened. (See Fig. 1.)



130

FIGURE 1.—DIAGRAM OF CONNECTIONS IN FIFTH TO EIGHTH EXPERIMENTS. 131

Continuous current; E. M. F., 400 volts; current, 0.05 ampère; circuit closed at 9:35 P. M., July 12, 1888.

Dog howled and struggled, but unhurt.

Sixth Experiment.

Same dog and same connection; relay used as in previous trial.

Continuous current; E. M. F., 600 volts; current, 0.1 ampère: circuit closed at 10:04 P. M.

Dog howled and struggled, but unhurt. 132

Seventh Experiment.

Same dog and same connections; relay used as in previous trial.

Continuous current; E. M. F., 800 volts; current, 0.15 ampère; circuit closed at 10:07 P. M.

Dog howled and struggled, but unhurt.

Eighth Experiment.

Same dog and same connections; relay used as in previous trial.

133 Continuous current; E. M. F., 1,000 volts; current, 0.25 ampère at first, then rose to full extent of ammeter. Relay contacts apparently poor, as lamps did not start immediately, as in previous trials with same dog. Circuit closed at 10:12 P. M.

Dog howled and struggled violently for two minutes, then apparently died. Dog immediately dissected by Dr. Frederick Peterson, and heart found still pulsating; peristaltic action of intestines continued and frequent quiverings of muscular tissue noticed. Heart continued pulsating until 10:50. Opinion expressed by Dr. Peterson that artificial respiration would have saved its life, if resorted to immediately after moment of apparent death. 134 Sections of spinal cord and sciatic nerve taken out by Dr. Peterson for microscopic examination.

Ninth Experiment.

Dog No. 4. Half-bred bull dog, strong and vigorous. Weight, 46½ lbs.; height, 21 in.; length from tip of nose to base of tail, 37 in. Connections same as above. Resistance, 11,000 ohms. Use of relay discontinued, but series of lamps permanently connected with dynamo, since alternating current would not have actuated relay.

135 Alternating current; E. M. F., 800 volts; number of alternations, 2,200 per minute; current (read by ammeter in circuit with dog, but between dynamo and circuit-breaker and alternator and therefore not on alternating current), 0.1 ampère. Circuit closed at 11:22 P. M. Time of contact through dog, 2.5 seconds.

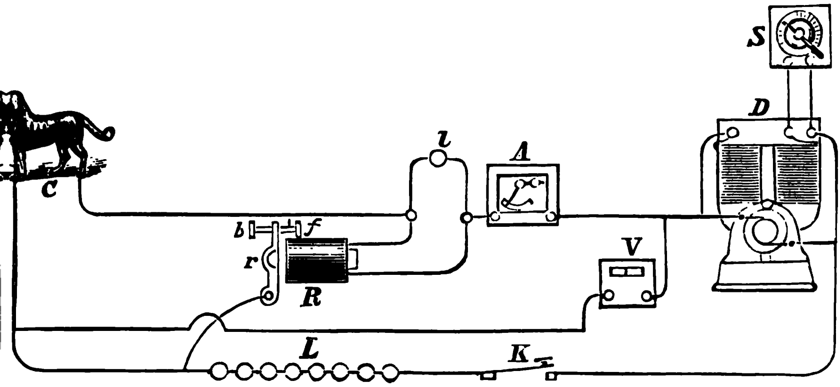
Dog was placed in wooden box to prevent accident in case he broke loose; slats were nailed across top of box, but these were unnecessary, as during time of contact the dog was apparently turned to stone. When circuit was opened, he fell in a limp heap and died in fifteen seconds after the circuit was closed. Dog immediately dissected by Dr. Peterson; muscular quiverings were 136 observed and blood had a peculiar dark, thin, fluid appearance. Sections of spinal cord and sciatic nerve taken by Dr. Peterson for microscopic examination.

Tenth Experiment.

Dog No. 5. Half-bred shepherd dog, strong and in good condition; weight, 50 lbs.; height, 23½ in.; length from tip of nose to base of tail, 39 in. Connections same as above.

Resistance, 6,000 ohms; continuous current, relay connected as per diagram (Fig. 2), to prevent extra current from field from reaching the dog when circuit was opened. E. M. F., 1,000 volts; current, 0.10 ampère. Circuit closed at 9:40 P. M., July 14, 1888. 137

Dog yelped once, but entirely unhurt. Did not struggle. Respiration rose to 120 per minute (panting).



138

FIGURE 2.—DIAGRAM OF CONNECTIONS IN TENTH TO SIXTEENTH EXPERIMENTS.

Eleventh Experiment.

139 Same dog and same connections. Relay as before to take extra current.

Continuous current; E. M. F., 1,100 volts; current, 0.20 ampère. Circuit closed at 9:44 P. M., same evening.

Respiration fell to 72 and dog unhurt. Dog yelped when circuit was closed, but wagged his tail as Dr. Peterson counted respiration.

Twelfth Experiment.

Same dog and same connections. Relay as before to take extra current.

140 Continuous current; E. M. F., 1,200 volts; current, 0.30 ampère. Circuit closed at 9:46 P. M., same evening.

Dog yelped as circuit was closed, but still unhurt. Respiration, 72.

Thirteenth Experiment.

Same dog and same connections. Relay as before to take extra current.

Continuous current; E. M. F., 1,300 volts; current, 0.20 ampère. Circuit closed at 9:51 P. M., same evening.

Dog yelped as circuit was closed, but still unhurt. Respiration, 60.

141

Fourteenth Experiment.

Same dog and same connections. Relay as before to take extra current; E. M. F., 1,400 volts; current, 0.40 ampère; circuit closed at 9:53 P. M., same evening.

Dog yelped slightly as the circuit was closed, but still unhurt Respiration, 72 (irregular).

Fifteenth Experiment.

Same dog and same connections. Relay as before to take extra current.

142 Continuous current; E. M. F., 1,420 volts, the utmost capacity of dynamo at its present speed; all resistance removed from field circuit; current, 0.20 ampère. Circuit closed at 9:58 P. M., same evening.

Dog yelped, but unhurt. Respiration, 72. Dog removed from box and found to be entirely uninjured. No signs of paralysis in either sensory or motor nerves. To ascertain whether any poor contact existed, dog's resistance was retaken. Resistance, 6,500 ohms. As all experiments upon this dog were with a single, instantaneous closing and short-circuiting of dog circuit, it was decided to replace him in box and hold the relay armature for two seconds after circuit was closed, in order to determine 143 whether current for this length of time would be injurious.

Sixteenth Experiment.

Same dog and same connections. Relay as before to take extra current, but armature held for 2½ seconds after circuit through dog was closed.

Continuous current; E. M. F., 1,200 volts; current, 0.30 ampère. Circuit closed at 10:30 P. M., same evening.

Dog yelped and struggled during continuance of current, but entirely unhurt. Respiration before closing, 132; after opening 144 circuit, 112. Dog released and found to be entirely unhurt in any way. He was thereupon christened "Ajax," as he had defied the lightning, and was adopted by engineer.

Seventeenth Experiment.

Dog No. 6. Plain, ordinary dog, strong and vigorous. Weight, 55 lbs.; height, 21 in.; length from tip of nose to base of tail, 35 in. Dog greatly alarmed at being placed in box; emptied bladder and was therefore placed in another box after first closure. Respiration (panting), 234 before circuit was closed. Relay not operated by alternating current and removed.

Resistance, 3,600 ohms; alternating current, 4,100 alternations per minute; E. M. F., 300 volts; current 0.10 ampère; contact closed for 2 seconds at 11:02 P. M., same night. 145

Dog screamed and howled loudly during time of closing, and made violent efforts to break loose for about one minute after circuit was opened. Respiration very variable, 54 to 30. Dog evacuated during continuance of current. As he had previously saturated the bottom of the box it was concluded that a portion of the current passed through the urine and allowed his motion during continuance of current. Dog placed in a dry box.

Eighteenth Experiment. 146

Same dog and same connections.

Alternating current, same number alternations; E. M. F., 400 volts; current, no reading; circuit closed for 2 seconds at 11:21, same night.

Dog silent and motionless during continuance of current; yelped and howled loudly at opening of circuit, and made efforts to escape. Respiration, 165.

Nineteenth Experiment.

147 Same dog and same connections.

Alternating current, same number alternations; E. M. F., 500 volts; current, no reading. Circuit closed for 2 seconds at 11:25 P. M., same night.

Dog silent and motionless during continuance of current. Yelped and howled loudly at opening of circuit, but not as vigorously as before. Continued to struggle to escape. Respiration, 170.

Twentieth Experiment.

Same dog and same connections.

Alternating current, same number alternations; E. M. F., 570 volts; current, no indication; circuit closed for three seconds at 11:31 P. M., same night. Length of contact increased to three seconds, since the circuit breaker and alternator make connection with circuit during but one-third of each revolution. Therefore to compare with the continuous administered for two seconds it should be closed for three seconds. 148

Dog silent and motionless during continuance of current; moaned, with one expiration of the breath, as circuit was opened and sank in a limp heap. Died in ninety seconds after circuit was closed. Opinion expressed by Dr. Peterson and myself that longer duration of the alternating current at a less voltage would

149 have proved fatal. Dog immediately dissected by Dr. Peterson. Opened at 11:41 P. M., same night. Auricle contracted under irritation at 11:46 P. M. The same muscular quiverings were observed, and blood had a peculiar, dark, thin fluid appearance. Sections of sciatic nerves from each leg taken by Dr. Peterson for microscopic examination.

Twenty-first Experiment.

With a Siemens Bros. & Co. alternating current generator for 100 volts, excited by a standard Edison dynamo, operated at 1,080 revolutions, with pulley 15 inches in diameter and a 3-inch belt; 150 288 alternations per second. Transformer used had iron ring core with primary of 10 ohms and secondary of 150 ohms resistance. A Cardew voltmeter was used for measurements of potential, and the strength of current was varied by introducing resistance in the exciter circuit.

Dog No. 7. Yellowish-brown bitch. Strong and in good condition. Weight, 41½ pounds; height, 21 inches; length from tip of nose to base of tail, 37 inches.

Resistance, 14,000 ohms. Cardew voltmeter before closing circuit on dog indicated 250 volts E. M. F. Contact closed for 5 seconds at 9:25 P. M., July 25, 1888. Dog uttered no sound; no struggling; died almost instantly. No struggles after current was 151 off, beyond muscular twitching.

Twenty-second Experiment.

Same dynamo, converter and speed.

Dog No. 8. Fox-hound. Strong and vigorous; weight, 56 pounds; height, 23 inches; length, 45 inches; resistance, 27,500 ohms. Cardew voltmeter, before closing contact with dog, indicated 181 volts E. M. F. Contact closed for five seconds at 9:50 P. M. July 25, 1888. Voltmeter dropped to 160 volts.

Dog motionless and silent during contact. As soon as circuit was broken all the muscles gradually relaxed, and the dog sank 152 down dead without a struggle.

Twenty-third Experiment.

Same dynamo, converter and speed.

Dog No. 9. Red setter. Very large and strong. Weight, 59 pounds; height, 24 inches; length, 39 inches.

Resistance, 5,000 ohms. Voltmeter before closing contact indicated 110 volts. Contact closed for five seconds at 10:53 P. M., same night. Voltmeter dropped to 99 volts.

Dog yelped once during shock, but very slightly; when circuit was opened, dropped slowly to bottom of box, howled and struggled. Recovered very slowly, and rose in about 30 seconds after circuit was opened. 153

Twenty-fourth Experiment.

Same dog.

Voltmeter at 150 volts, before closing. Contact closed for five seconds at 10:22, same night. Voltmeter dropped to 114 volts.

Dog silent and motionless during contact, but howled and struggled very violently after circuit was opened, succeeding in getting out of box.

Twenty-fifth Experiment.

154

Same dog.

Voltmeter at 190 volts before closing. Circuit closed for five seconds at 10:30 P. M. Voltmeter dropped to 146 volts.

Dog silent during shock; howled afterward, but very weak; evidently severely injured; dropped and did not rise again.

Twenty-sixth Experiment.

Same dog.

Voltmeter at 204 volts before closing. Contact closed for five seconds at 10:32 P. M., same night. Voltmeter dropped to 176 volts. 155

Dog silent when current was on; howled feebly afterward. Dog panting violently and perspiring copiously. Evidently dying, but to put him out of pain it was decided to give higher voltage.

Twenty-seventh Experiment.

Same dog.

Voltmeter at 260 volts before closing. Contact closed for five seconds at 10:36 P. M., same night. Voltmeter dropped to 188 volts.

Dog died without noise or struggle.

156

PHYSIOLOGICAL TESTS WITH ELECTRICAL CURRENTS.

PAPER READ BEFORE THE BOARD OF ELECTRICAL CONTROL AND OTHERS.

At the invitation of Mr. Harold P. Brown, a large number of electricians assembled at Columbia College on Monday, July 30, as noted in these columns last week, in order to witness his experiments on the effects of the electric current on dogs. These

157 experiments consisted first in passing a current through the dog from an Edison "municipal dynamo," which had been provided with a relay to prevent the extra current from reaching the animal upon the opening of the circuit. The resistance of the dog at the start was 15,300 ohms, and, beginning with 300 volts, the pressure was increased to 1,000 volts without fatal effects, although the dog suffered somewhat under the higher pressures. The alternating current was then tried, and on the first application with 330 volts the dog was killed, dying without a struggle. Mr. Brown had intended to make experiments with other dogs, but was prevented therefrom by an officer of the Society for the Prevention of Cruelty to Animals. 158 Mr. Brown in his experiments was assisted by Mr. A. E. Kennelly, Dr. Peterson, Dr. Schuyler S. Wheeler, and Mr. T. Carpenter Smith volunteered to check the readings at the request of Mr. Brown. Coincident with his experiments, Mr. Brown read the following paper:

ON THE DANGER OF ALTERNATING CURRENTS.

GENTLEMEN: I appear before you in behalf of the many men who have met sudden and violent death from electric light machinery. Not only have they been robbed of life, but their 159 memory has been blackened by the accusation of foolhardy carelessness from the testimony of their employers and associates. I do not mean to say that none of these men have been responsible for the accidents that killed them, but I do say that in every case their employers have sought to evade responsibillty by throwing the blame on the dead man, who cannot defend himself; so, if these reports are to be believed, it is as disgraceful to be killed by electric currents as it is to meet death by blowing in the muzzle of a gun to see whether it is loaded. In the case of lineman Murray, I quote from the *Herald* of May 12, in an interview with the superintendent: "He removed the insulation from one of the 160 wires with something, probably his knife. I do not know why he did so, for it was not necessary. When he removed the insulation he cut into the wire, as is shown by the freshly cut copper, and then must have made a contact with the iron cornice, and current passed through his system. His experience ought to have taught him the danger of what he was doing."

Murray might have taken hold of the bare wire without any injury had there been no other ground connection upon that circuit, or had the wire been perfectly insulated throughout its length; he had no means of knowing that there was a ground on the circuit, and it was the company's duty to see that the line was clear from grounds; he had no means of knowing that the cornice was grounded.

I quote from *The Electrical World* of July 28: "At Halifax, some time ago, a lamp trimmer climbed a pole to trim a lamp. The current, it seems, was on. By carelessness, we will assume, he took hold of both wires and was instantly killed. The next day, or day after, a second man was in like manner killed. They thought they knew all about it. It is said—and, if it is true, to be unconditionally condemned—that the electric light company are running some 90 lamps and about 4,000 volts on this circuit, by reason of which they save the wire necessary to divide the lighting into two circuits. Such economy is criminal in the extreme." 161

Of course these deaths are assumed to be from carelessness, because the "company" says so. But the last sentences quoted show that the poor fellows were in no way to be blamed. In any case, if it is necessary to carbon the lamps when the current is on, it is the company's duty to supply each lamp with a switch that will cut the lamp entirely out of the circuit. 162

On May 6, 1887, Mr. J. T. Simpson, engineer in the Adams Express Building, was killed by putting his hand on the circuit while standing on the floor. A week or so ago another engineer was killed at the same place and in the same manner, and I do not suppose that the company which installed that plant has even yet seen fit to notify its owners that their circuit is probably grounded.

But it is unnecessary to multiply cases, as the press has been led to believe, from statements of superintendents and managers of electric lighting companies, that death from electricity is necessarily from carelessness. For a long time I have felt that it was my duty to tell the truth, in the hope that it would lead to the adoption of safety devices, and, as case after case was published, I have felt guilty because I had not the courage to do so. Finally, when young Streiffer was killed, on April 15, by touching a straggling telegraph wire, and the following day two telephone wires dropped in the street in front of my house, I could keep silence no longer, and I wrote an article calling attention to the causes of death from electric lighting, and suggesting means for rendering fatal accidents less frequent. 163 164

In the course of this article I could not refrain from stating what I thought of the system of operating incandescent lights in our homes by means of alternating currents, since I had good reasons for believing these currents far more dangerous than those for operating arc lights in the streets and in stores, where the wires are ordinarily out of our reach. I knew that the letter would cause a terrible outburst of indignation against me on the part of the wealthy and powerful "combine" of corporations which is exploiting the alternating system, but I believed that I was right, and therefore had the courage to state what I considered to be facts.

165 Having written the letter and submitted it to several friends for criticism, I tried to get it published, never anticipating any difficulty in that respect, since its object was public safety. I left it with the assistant city editor of a prominent morning paper and he seemed very glad to get it. After waiting for a while I called upon him, and he said he was very sorry, but the fact was that he could not use the article.

Warned by this, I obtained letters of introduction to the manager of another prominent morning paper and stated the case to him. He agreed at once to publish it. I waited for some time, and then sent a friend who was well acquainted with an assistant editor to ask after it. The reply was, that, if the part of

166 the article referring to alternating currents was omitted, it would be acceptable; if I insisted upon having it published as it was, it should go in, but he would advise me not to do this.

By this time two more deaths had occurred, and I re-wrote the article and took it to the editor of the *Evening Post*, who kindly published it. It was my intention to demonstrate with arc lighting machinery the exact truth of my statements, and the value of my suggestions, and this I shall do on a future occasion. But a few days after my letter was published, an anonymous correspondent attacked me in a letter to the *Post*, written in the interest of the alternating current system.

167 On June 8, at a meeting of the Board of Electrical Control, Commissioner Daniel L. Gibbens read my article and offered a resolution, which was adopted, that it be published in the minutes, and a marked copy sent to various electric lighting companies and others, asking their opinion in writing, or their appearance before the Board to discuss the matter. This meeting of the Board was deferred until July 16, and I was in Virginia on that date. I wrote that I was unable to attend, but would invite the Board and those interested to meet me at a later date.

At this meeting many letters were read. Those from Mr. Ralph W. Pope and Prof. Henry Morton were written in a scientific spirit, and were dignified and gentlemanly, as would be ex-

168 pected from men of their standing. But all the other letters were from persons in the employ of the alternating systems, and were bitter, personal attacks upon me, instead of scientific discussions of the subject.

After these attacks, to which I will refer in detail later, there remained but one thing for me to do to clear myself; I must show from their own current and its effect upon life as compared with continuous currents, that my statements are true. Words are of no avail against such accusations as theirs. I therefore made preparations to demonstrate the character of alternating currents, so that they could no longer claim them to be safe and harmless, and, in all honesty and fairness, sent invitations to the men who had attacked me to be present this afternoon and learn what alternating currents could do. I blush for my profession when I tell you the next move of the opposition, and there are two gentlemen in this room who can prove the truth of my statement. 169

Having done all they could to publicly blast my reputation and stamp me as an ignorant impostor in electrical engineering, they tried to invoke the law to prevent my disproving their charges by a demonstration. After trying to rob me of my means of obtaining a living—for I am not in the employ of any company, corporation or individual—they proposed to gag me by appealing to the law.

In spite of this affront, I shall invite the representatives of the alternating current who are present to appoint a committee of three to come forward when I deal with their current, test all my connections, check up my measurements with their own instruments, and see that I am not deceiving in any of my experiments. But I do this upon the condition, that, if they make a counter demonstration, they will afford me the same privilege, and give me the same notice that I gave to them. 170

I do not propose to present a scientific paper to you this afternoon, but will simply give you a few samples of the experiments I have been engaged in for a considerable time, in order to determine the death points of continuous, pulsating and alternating currents, and will reserve the full report of the same and the conclusions to be drawn from them for the subject matter of another paper. Dr. Frederick Peterson, who has had many years' experience in diseases of the nerves, has assisted me by dissecting some of our subjects and making microscopical examinations. He will do the same this afternoon, if any of our experiments with the alternating or continuous currents have a fatal ending, and will read to you a brief paper on the subject. 171

I have invited the representatives of the press, as a means of affording protection to the public, since the alternating current people claim their system is perfectly safe, and if it is not so, the public should be warned of it, so that they can be on their guard when they encounter it. I hold that all currents with an electromotive force (or pressure) of 500 volts or more, are dangerous to life, and should be surrounded with all possible precautions; that apparatus can be made which will render both the continuous and pulsating currents safe in ordinary use; that apparatus has not yet been invented that will make alternating currents equally safe. 172

Therefore, if the press and the public understand the conditions, and insist that the pressure of the alternating current be reduced to safe limits until some safety device is invented for higher pressures, it will not be long before some such invention is forthcoming. Not many years ago, the sudden growth of the telephone business and the great number of wires over buildings

173 and on poles, led the press to demand that they should be placed underground; at once all the telephone experts protested that it was impossible; telegraph wires could go underground, but not telephone wires. The press hammered away on the subject, and, as a result, many cities prohibited the extension of pole lines. Then the telephone men discovered means of operating their wires underground, and such lines appear to give better results than the old ones.

It was the same with the underground electric light wires. All of the experts protested not long ago that it could not be done; if it was insisted upon, they would all have to go out of business, and their investments would be worthless. Mainly 174 through the insistence of the press, some cities would permit no electric light wires on poles. In these places the wires went underground, and are working with apparent success. It is simply a matter of the amount of money expended upon insulation, and the care with which the water is kept out of the joints.

Now, if I can convince the Board of Electrical Control and the press representatives that the alternating currents as at present used are a constant menace to life and limb, I am sure that some safe way of electric distribution will be promptly devised, and these companies will not go out of business. The alternating current combination is an immense one, and has un-175 limited capital at its disposal; it can well afford to expend a fortune, if necessary, in experimenting upon safety devices, but it will not do so unless it is forced to it.

What corporation ever has spent money for the safety of the public until it was forced to do so by legal enactments, or by business competition? The greatest life-saving invention of modern times, the air-brake, was not adopted voluntarily by the railroads. For years, many of their managers insisted that no mechanism could be as reliable as a brakeman with his hand-brake. At last they were all forced to yield, and the saving of lives and money through the use of the air-brake cannot be computed.

176 The friends of the alternating current system have tried to give the impression that I am the only person who is in favor of limiting their voltage, excepting, of course, their competitors in business. That is a very broad statement, and I will reply by quoting from the English law on the subject.

"§ 19. The electricity passing at any time through any electric line of the undertakers, being in or under the premises of any consumer, shall not exceed 200 volts for incandescent lighting, nor 4,000 volts for lighting by the arc system or for the transmission of power."

In regard to Germany I quote from a letter to a prominent insurance man, from a member of the firm of which Siemens Brothers are the head:

DEAR SIR: Replying to yours of the 24th inst., I beg to state that, as far as I am aware, there are at present no high-tension converter installations in use in Germany; as to England I am unable to speak. Speaking for myself personally, I am decidedly of the opinion that in Germany the converters would not be permitted inside of the buildings, and further, in my opinion, even the secondary wires would be looked upon with suspicion, wherever the converter itself might be placed, in view of the great liability of the high-tension current to escape to and traverse them. 177

Yours very truly,

E. KAISER.

The recent French electric lighting act is even more severe. I have not yet received a full copy of the new law, but quote from the London *Telegraph Journal and Electrical Review* of July 6, 178 1888: "It would appear that so long as a certain voltage (60 volts for alternating and 500 volts for continuous currents) is not exceeded, but little control is exerted over complete installations carried out on one and the same premises, the preliminary formalities in these cases being dispensed with. The safety of the workmen is particularly cared for, it being enacted that they are to wear india-rubber gloves, and on no account to carry bare wires in their hands." These limits were set in accordance with the recommendations of M. d'Arsonval, who has made a study of the danger limit, and who was the first to suggest the placing of a voltmeter across the terminals of a continuous current dynamo, 179 as a means of protection against the extra current caused by opening the circuit. This gentleman says that one-sixteenth of the pressure used and declared "safe" by the alternating current people in this country is fatal. We will try to find out this afternoon which of the two is correct.

For the benefit of those who are unfamiliar with electrical units, I will say that the volt is the unit of electromotive force (or pressure), the ampère is the unit of current strength and the ohm the unit of resistance. Currents which flow steadily in one direction are called continuous and those which have an impulse first in one direction and then in the other are called alternating. 180

My first experiment will be with the continuous current, and I have arranged a relay so as to prevent the extra current, caused by opening the circuit from reaching the subject. I have asked Mr. A. E. Kennelly, chief electrician of Mr. Edison's private laboratory, to assist me in the managament of the current strengths and the reading of the voltmeters, and I would like to have Mr. Schuyler S. Wheeler, electrician of the Board of Electrical Control, to superintend the measurements of the resistances of the subjects, and if Prof. Henry Morton is present, would be very glad to have him assist in the same, and check readings on any of the instruments.

181 The resistance of a living being will be found rather troublesome to measure, as even the small current used for the purpose will, as soon as it passes through the living tissue, tend to reduce the resistance, especially so if it be alternated. This is one reason why alternating currents are more dangerous, since the longer they flow the less the resistance becomes, and the greater is the amount of current received. The tension of the muscles will also still further reduce the resistance.

182 I have in the engine room a dynamo made by the Edison company for municipal lighting, and I have arranged these resistance boxes in its field (or charging-magnet) circuit, so that I can vary the pressure at will from zero to 1,400 or 1,500 volts. I propose to close the circuit upon the subject at gradually increased pressures, and as long as the relay does not fail in making its contact the animal will be uninjured beyond being alarmed and startled by the shock.

183 We have in the engine room a small alternating current machine, made by Siemens Bros. & Co., of London. We will charge its field by the current from an Edison low-tension dynamo, which is ordinarily used for lighting portions of the college buildings. In the field circuit are placed resistances, so that we can obtain any pressure from zero to 1,000 or 1,200 volts. This is a converter in the simplest form, composed of a core of iron wire upon which is wound a primary of 10 ohms resistance, and a secondary of 150 ohms. The dynamo is run at a speed of 1,800 revolutions per minute, and gives 288 alternations of the current per second. I would like to have a committee of three from the representatives of the alternating current companies, bring up their voltmeters and test the pressures, but I will ask them to record the same and report to me. If any other persons in the rooms have voltmeters for alternating currents, I should be glad to have them take readings.

I shall commence at the pressure which failed to produce fatal results in the last case.

184 [Mr. Brown then made the experiments with the results indicated above.]

I will now take the opportunity of replying briefly to some of the letters from the alternating current people, but I shall not notice the personalities with which these letters abound. Personal abuse is out of place in scientific discussions; calling hard names shows how weak are the arguments in favor of high-tension alternating currents.

The first person to attack me did not have the manliness to use his name, but wrote an anonymous letter, which was printed in the *Post* of June 19. He commences by stating that I am in the employ of the Edison Electric Light Company, and bases his

attack upon that hypothesis. From 1876 to 1879 I was employed 185
in an early venture of Mr. Edison; for nearly five years thereafter I was connected with the Brush Company, and located at Chicago; since then I have been interested in an invention of my own, which has been tied up by a four years' fight in interference in the patent office, and have been earning a living as an independent electrical engineer. I have purchased apparatus for clients of mine from the Edison United Manufacturing Company, but have never been employed by any Edison Electric light interest. Even if I had, it would have no bearing on the matter; but the writer wishes to give the impression that I am not disinterested in the matter, but am acting from selfish motives.

186
This gentleman claims to have taken the full force of an alternating current of 1,000 volts; I have sent him a card in care of the *Post*, and would ask him to step forward and name the voltage that he will dare to take in your presence. He says that railroads and steamboats, etc., are dangerous, but that nobody tries to stop them, therefore his current, which is "perfectly safe," should not be reduced in pressure. With all of the dangers of modern civilization except high-tension electricity, there is some evidence to the senses to warn people to beware. The moving locomotive, the dangerous bob-tail car, the insinuating buzz-saw, can be seen and heard. Escaping gas can be smelled, overpressure in steam boilers is shown by the steam guage; but high- 187
tension electricity may lurk in two iron steps, one connected to the circuit, and the other grounded; it cannot be detected or even suspected in many cases, until the damage is done. Therefore the public has a right to insist that every precaution known to science be thrown by law about its use.

This unknown refers to a former device of my own for long-distance electric lighting, as do several of the others. I will say right here that the device referred to, if used on a high-tension dynamo, without the protecting devices named in the rules recently proposed by me, would be as dangerous as any other part of an arc light circuit, and I have never advocated its use in the 188
homes, but only in stores and on the streets, where the circuits could be kept out of reach. It was for operating a definite number of incandescents for definite lengths of time, and was not suited or designed for house use. The subject became involved in a patent interference case, and the device was, and is, withdrawn from sale. I think that Mr. T. Carpenter Smith, who makes the same charge against me, was at one time an employee of a company using Brush arc lights, and that he then used and sanctioned a similar device of the Brush Company's, for incandescents upon an arc circuit. Mr. S. C. Peck, who is, I believe, an employee of the Thomson-Houston interest, makes the same charge against me. This gentlemen may remember that his company at one time

189 installed a large number of similar devices, one of which killed a man at Hartford, Conn. Mr. M. M. M. Slattery joins in the same cry against me, and he was, but a year or so ago, engaged in manufacturing and selling apparatus exactly similar to one of my devices for the same purpose, at Woburn, Mass. Their attacks upon me on that head must have been made upon the supposition that I had a very short memory.

But to return to my unknown assailant. He states that the "exploded form of quasi-insulation" (meaning underwriters' wire) "is no longer used." The company in Harlem, to which he refers, seems to be still using it. He states that "Mr. Brown says there is
190 nothing between the two circuits" (meaning the primary and secondary circuits in the converter), "except a thin layer of cotton or silk; this is true in a sense, but in another sense it is entirely incorrect. There are two layers of cotton or silk on each wire, in addition to which there is usually a layer of other insulating material and the whole is saturated with a compound of specially high resistance, and the converter is provided with fuses in both the primary and secondary circuits, as an additional protection."

In all of our experiments this afternoon, the current has passed through the smallest size of fuses used in practical work, and I wish to ask how much protection they afforded. He further states that my fears as to death from the alternating current are
191 "imaginary," and implies that no deaths or serious injuries have ever been caused by the alternating system. Indeed! In this room is a gentleman who was at the Paris Electrical Exposition some years ago, and who sent one of his employees to examine, on the day after the accident, the place where two men, in climbing a wall near the Grand Opera House in order to get a better view, touched the two wires leading to alternating current lamps, and were instantly killed. On the Czar's yacht, at about the same time, a man was killed by touching the two wires of an alternating current dynamo. In both of these accidents the pressure of voltage was far less than that advocated for use in this city to-day.

192 Mr. T. Carpenter Smith makes one correction of my article which is true; he says that Mr. Witte was killed by a closed circuit armature dynamo. My article was written mainly before Mr. Witte's death, and I see that I neglected to change my figures to correspond. For that I wish to be pardoned, as it was an oversight. This Mr. Smith lays all the blame of fatalities upon the condition of the circuits, and rates me for not calling attention to them. If he will read my article carefully, he will see that I did so. He quotes the oft-repeated tale of the painter who fell upon the alternating current wires in Pittsburgh and was uninjured, since the insulation happened to be good, and seems to think that this proves that the currents inside of the insulation could not have been dangerous. To offset this story, which I have no doubt

is perfectly true, I will read a little correspondence, which may be of interest. 193

Mr. E. P. Cooper, Manager American District Telegraph, Trenton, N. J.:

DEAR SIR: I see from the newspapers that you were injured a few days ago by a shock from the Westinghouse alternating current line. I am to appear before the Board of Electrical Control next Monday, to demonstrate the dangerous character of the alternating system, and would be greatly obliged to you if you will write me by return mail, giving full particulars concerning the accident, with all details, saying whether the day was wet or dry, how you got the shock, its results, etc. Trusting that you will be able to make a prompt response,

I remain, very truly yours,
(Signed) HAROLD P. BROWN. 194

New York, July 26, 1888.

ANSWER.

DEAR SIR: It was a clear, dry day; working on ladder; cause, pulling an iron wire over primary conductor of an alternating machine; was thrown from the ladder, and lighted in a gutter in water and mud, and was severely handled; being alone, could not let go of iron wire. The insulation of the electric light wire was, to all appearances, perfect. The shock was very severe; and thought the time had come to pass in my checks. Excuse me, but I don't care to "wrestle" with the animal any more. I was laid up for a day, and feel the effects of it to-day.

Very respectfully,
(Signed) R. P. Cooper. 195

Trenton, N. J., July 27, 1888.

It seems that this insulation is not everywhere as perfect as it is in Pittsburgh. Mr. Smith asks why the Edison Company purchased the control of the Zipernowski alternating current system. As I did not know, I called upon Mr. Edison last Friday evening, and asked him. He replied that as the Edison Electric Light Company was managed by business men, and as the Westinghouse people had made such great claims for the alternating current, they determined to purchase the system. They did so against his protest (but paid a very small price for it), but they would never put it upon the market. 196

This Mr. Smith states that he has received the full current of a thousand volt machine several times, and it simply makes him feel better apparently' I will ask him to come forward, if he wishes to do so, and take a few hundred volts to prove his belief. Let me introduce some more correspondence, which will show that Mr. Smith could not possibly have received this current without being at least crippled.

I quote from the *World* of July 14:

"*Parkersburgh, W. Va., July 13, 1888.*—Manager J. E. Mayhew, of the Telephone Exchange of this city, was repairing a wire which had fallen across the wires of the Electric Light Company to-day, when the current was turned on. It caught Mayhew at

197 the top of the pole, and shocked him into insensibility. He hung forty feet above the street, jerking to and fro, while his shirt caught fire and his flesh burned in view of a crowd of people. His assistant ran up the pole, cut the wires, and brought Mayhew down. He was severely burned about the arms and body, and, it is feared, fatally injured."

I at once wrote for particulars and received the following:

"DEAR SIR: In reply would say that J. E. Mayhew was burned on Friday, the 13th, at 3 P. M., by an incandescent Westinghouse 650-light machine, running at full speed, with a head of 80 pounds of steam and a thousand volt current. There were 650 lamps in circuit, but not more than 50 then burning. The wires are under the telephone wires, and a splice had been left bare,
198 and had never been insulated. He is very badly shook up, his whole nervous system broken up, and his right arm burned to the bone. All the muscles are burned crisp, also the right hand badly burned where he held the wire in his hand. The line he held in his right hand, and the arm above the elbow laid across the telephone wire and burned it out, also the annunciator on the board. This was done through his arm, so you can judge what kind of current it was. The time the current struck him he was on the top of a 35 foot pole, and fell across the cross-arm and the wires held up until his assistant at the wires went up and carried him down. His clothing was burned off his arm. He is some better and will probably get well, but his arm will be crippled. I am one of the operators at father's office, and am 13 years old, and, as he could not answer your letter, I will try the best I can.

199 Respectfully yours,
(Signed) CLARA MAYHEW.

Parkersburgh, W. Va., July 16, 1888."

A current which, passing from this man's hand up his arm, through his clothing to a telephone wire, which of course was grounded, could burn off the heavy iron wire and all the receiving apparatus in the office, is not one which can be received with impunity. Had Mr. Mayhew received this current from one hand to the other it would undoubtedly have killed him. And even this was not the full current from one of their alternating wires to the other; it was simply the leakage from a single alternating current
200 wire to the ground.

Mr. S. C. Peck is the next to attack me. He says that the alternating system is perfectly safe, because the primary and secondary coils of the converter are "separated by a very substantial septum of insulating material, thoroughly dried and shellacked, and finally, the secondary or interior circuit is soundly connected to the earth." This introduces a very decided element of danger. Suppose a well-appointed house, equipped with a telephone and lighted with incandescent apparatus of this kind. A contact between the primary wire and the telephone wire has been made and the grounds burnt off by the primary current, as in the case just quoted. The householder wishes to use the telephone, and has no means of knowing the dangerous condition of the

wires. He turns the bell crank, but there is no sound; he lifts 201
the telephone from the hook and turns on his alternating incandescent lamp. As he does so, he touches the yoke of the call box which is connected to the primary circuit, and touches the socket, which is connected with the ground, and he is instantly killed. The electric light company at once says it must have been heart disease, and if not it was all the telephone company's fault. Mr. Peck may say that his company's lamp sockets are not connected with the circuit, but are perfectly insulated. But Mr. W. L. Wright says, under oath, that "the wiring had then been changed and connected to a 1,000 volt alternating current, and, forgetting. that this current would be on the socket, I took hold of the socket 202
while standing on the wet ground, when I received a shock which threw me on my face, with my hands underneath me and still grasping the socket."

Now, Mr. Peck says that the house wires are perfectly insulated from the primary or dangerous current, while Mr. Wright says, under oath, that he got the 1,000 volt current from the socket. Which is telling the truth? Later in his letter, Mr. Peck, after telling how safe it makes his system to make a permanent ground connection upon the secondary circuit, says that "a constant ground on a high-tension dynamo is poor engineering." He thinks that the present practice of testing lines every day is much better. But ground connections are liable to occur at any hour out of the 203
twenty-four, and testing once a day may not find it.

Let me show you how thoroughly most of the station managers test for grounds. They generally have a magneto-electric call bell similar to a telephone call; they connect one terminal to the ground and the other to the line, and turn the crank. If there is no ring they conclude that the line is perfectly insulated. Now, with this apparatus I can give any person here a painful shock without the slightest ring of the bell, and as in certain conditions the arc current can kill, even though it passes through the resistance of a human body, it is evident that a ground sufficient to cause a fatality may exist and not be detected by this apparatus. 204

Mr. Peck has also discovered that I am in the employ of the American Company, and that my bias in favor of this system is the reason for all my zeal. There are several representatives of that company present, and any one taking that view of the case is referred to them. Possibly Mr. Peck does not remember that there are many other closed-circuit armature dynamos besides the American.

In his letter he states that "there is no self-induction of any moment to produce the dreaded extra current" (there he is right) "and opening the circuit" (the alternating current) "and introducing one's self into it merely subjects one to the pressure of 1,000 volts, which has never yet proved fatal." Can Mr. Peck ever read

205 the newspapers? Such statements as that are simply incendiary. What would be thought of a physician who published a statement that arsenic had never been known to produce fatal results, and advised every one to use arsenic for sweetening coffee?

I will quote again from the New Orleans *Daily States* of Sept. 23, 1887:

> "Several accidents have happened of late to linemen of electric light companies, who have been knocked senseless by coming in contact with wires while in the performance of their duties. Tuesday last a lineman in the employ of the Edison Light Company was knocked from a pole at the corner of Canal and Carondelet streets, by receiving a shock from a wire charged with the 206 alternating high-tension current from the Westinghouse machines used by the Brush Electric Light Company. The accident was the second serious occurrence in this city from the Westinghouse alternating current. Fortunately, it has not so far turned out to be fatal, as did the accident of a month ago, which occurred as follows: The unfortunate man, who was killed, was at work on a pole pulling up a dead arc wire, when his foot slipped and he fell across the wires carrying the alternating current, which wires had been bared of insulation, in order to tie them in firmly to the insulators. The man was suspended by the wires, and the current passed through his body from the inside of one thigh to the upper ribs on the other side, the flesh being burned to the bone in both cases. It was probably five minutes before they could switch off the current from him, and by that time he was stone dead.
>
> 207 Two serious accidents, one being fatal, from the alternating current in the course of five weeks, render it necessary to call attention to this new element of danger in the streets, and to consider what precautions should be taken. The alternating system is new in this country, and very little experience has been had with it, compared with the arc system. However, this experience has shown that this current is quite as dangerous, if not more so, than the arc current, which has killed so many men. There are two reasons for this: First, the full pressure of current (1,000 to 1,200 volts) is on every pole in circuit; second, the wires running parallel with one another, only a short distance apart, it is very easy to obtain a shock; in fact, it is very difficult for a man working on a pole to avoid receiving a shock sufficient to knock him from a pole, and should he be suspended and unable to free himself, as occurred in the fatal accident referred to, the shock quickly proves 208 fatal."

In order to learn whether any more men had been killed in New Orleans since these accidents occurred, I telegraphed last week and received this reply from a reliable gentleman: "In September, 1887, lineman of Brush Company, at work on lines, fell across and was killed after being burned to the bone. In October, telephone employe threw his wire over Westinghouse line and was instantly killed. Cannot get further particulars at the moment."

Mr. M. M. M. Slattery repeats the same tale with variations. He says: "After an extended practical experience of three years by those who have carefully followed the alternating system in use, and after many physiological experiments, frequently involuntary ones, to determine the safe limit of pressure to work with, it has been found that no fatality can occur or serious inconvenience result from a shock from an alternating current, having a pressure of that already cited, 1,100 volts." But soon after he forgets what he has said, and makes this admission: "Now, in this case we want to prevent the dangerous current reaching the users of lamps; we know the current is dangerous; practical experience has so informed us." Very well said: it is perfectly safe, but we know it is dangerous. This gentleman puts 1,100 volts as the limit that can cause no fatalities. I will quote again: 209

"Telegram to the *Herald*. BUFFALO, N. Y., Feb. 5, 1888. 210

A fatal electric light accident happened at 1 o'clock this morning. Robert Taylor, driver of the delivery wagon of the Pioneer Co-operative Grocery Store, was making his way down Michigan street in the blinding snow and rain storm. At the corner of Eagle street his horse dropped, and at the same moment Taylor received a severe electric shock through the lines. He was dazed for a moment, and even after he recovered did not comprehend what had happened. He got down, seized his whip, and started to prod the prostrate animal, but was knocked down unconscious by a second shock. A colored man, who was standing on the sidewalk, came to his relief and attempted to help the horse. He was heard to yell terribly for the space of five seconds, and then all was still. Policemen Hennessy and Haley ran up, thinking it was a murder, but in a moment they had the colored 211 man in Smith's drug store, pouring whiskey into him. Drs. Hanley and Mulhern came over from the Emergency Hospital on the corner below, and removed the unconscious man with them. As he passed through the hospital door, his heart stopped beating, and he never knew anything after the current struck him. His hands were terribly burned, the fingers being cut to the bone. He was identified at two o'clock as Isaac Morton of La Fayette street, Detroit. The Brush electric light man found that a telephone wire had broken and fallen into the street, making a cross with one of their wires. The wire was found tangled about the horse's feet."

And yet Mr. Peck thinks testing for grounds once a day is sufficient to prevent any mishap. It does not state in the article 212 what current killed this man, but there is a gentleman present who was told by one of the Brush men at Buffalo that the ground which caused this accident was upon one of the primary wires of an alternating current dynamo operated at the Brush station.

One of the electrical papers this week states that Mr. Slattery's letter proved that I had opened my mouth and put my foot in it. Here is one of Mr. Slattery's statements, that undoubtedly caused me to perform this singular gymnastic feat: "In point of fact, the low-tension current at 220 volts in underground conductors offers a far greater strain upon insulation, than an alternating current at 1,100 volts."

213 Let me contrast this with the statement of Professor Morton upon the same subject, upon which, by the way, Professor Morton is high authority. "Even the Edison wires in New York are frequently being torn up to repair injuries due to loss of insulation, notwithstanding their very low electro-motive force of but 110 volts, as any one can see who has occasion to go about the streets traversed by the Edison conductors down-town. When currents of twenty times this electric pressure, as it has been aptly called, are used, this tendency to rupture the insulation is proportionately increased."

Prof. Morton does not quite get my meaning in referring to the Galvano-Faradic coil. I desired in a simple way 214 to give the average newspaper reader a slight idea of the effects of pulsations or interruptions, and did not intend to compare this apparatus with an alternating current dynamo. His criticisms upon my Rule 1, I must admit as well founded. Let us, then, change it so as to read as follows: "Not more than 3,000 volts shall be used upon any arc light circuit." He is also right in stating that some volume of current is necessary, if accompanied by enough electro-motive force to carry it through the body, in order to kill; but he is mistaken in assuming that it requires considerable volume. In one of our laboratory experiments (No. 27), a fox-hound, weighing 55 pounds, was killed by a current, alter- 215 nating 288 times per second, at 160 volts E. M. F. His resistance was 27,500 ohms, and the calculated current would therefore be exceedingly small. We found, however, that when we used continuous currents, and could measure the ampères that produced fatal results, the indicated current was much larger than the calculated current, showing that the resistance had been reduced by the current itself. We had no ammeter for alternating currents, and could therefore make no observation; but from our experience in the dropping of the resistance when we reduced the galvanometer current in measuring resistances of living beings, I should assume that the actual current would be at least three or four times as large as the computed current.

216 Mr. Shallenberger has discovered an electric current that does not decompose an electrolyte. He says: "There is a very convincing reason for the small danger due to alternating shocks to the human body, as compared to those received from the direct current namely, the fact that the conducting fluids are more or less decomposed or electrolyzed by the passage of the direct current, while it is well understood that such an effect is not produced by the alternating current."

Mr. Shallenberger is respectfully referred to an article in the London *Telegraph Journal and Electrical Review*, of July 6, where he will find an article upon "Electrolysis by the Alternating Currents of Dynamo Machines," which he can read to great profit.

If he will connect a voltameter to his alternating current machine, 217 having very fine platinum wires for electrodes, he will observe an exceedingly brisk decomposition of the electrolyte, producing the gases in a dangerous mixture of oxygen and hydrogen at each pole. I do not think he can cite a case in which a death has been caused by electrolysis from a direct current dynamo. Mr. Shallenberger also has received 1,000 volts without injury, and ends his article by stating that the alternating system (Westinghouse) is "absolutely safe" both to life and property.

If these people would but say to the public: "Our system is extremely dangerous, you must handle it with great caution; we take every possible precaution to protect you, but you must not be reckless," one could forgive much. 218 But when they set it up as absolutely safe, and instruct their agents and engineers to tell the public so, it is time for them to receive a sharp lesson. It is a common thing for engineers in charge of alternating current stations to say, when visitors ask whether the current is not dangerous, "Oh no, I can put my hands on both brushes." Then, to illustrate, he puts his hands on both brushes—of the little dynamo used to excite the fields of the alternating current machine, and having a continuous current of very low voltage. This story has come to me from several different gentlemen, who have seen the thing done; there are two of them here this afternoon. But if the visitor pretends that he is going to put his hands on the 219 brushes of the alternating current dynamo, the attendant nearly breaks his neck in his endeavors to keep him away. Perhaps this is the 1,000 volt current that so many of these gentlemen have taken so often without injury. Mr. Byllesby is candid enough to admit that 1,000 volts may prove fatal, and I congratulate him upon his honesty.

The advocate of The Safety Electric Light and Power Co. should be required to change the name of his company before it is given permission to operate in this city, or to reduce the potential to a voltage which this afternoon's experiments have proved to be safe.

220 Mr. S. G. Smith is an advocate of the safety involved in testing circuits occasionally, with (I presume) the usual magneto call bell. He is right in stating that a ground connection, even through high resistance, would be a strain upon the insulation, but it would not be one-hundredth part of the strain caused by a telephone wire's dropping upon the circuit during the night's run. This gentleman thinks that there is no occasion for the fifth rule suggested by me. Does he not remember that in the same issue of the *World* which told of Mr. Murray's death, was the report of the death of a young man at the park, in, if I remember right, Syracuse, who saw the electric wire break, and then sparkle upon the ground? He picked it up and was killed.

221 I cannot close without a reference to the absurd affidavit of Mr. W. L. Wright, who solemnly swears that he feels sure that if he had received "this kind of a shock from a direct current machine of any of the ordinary types that it would have been fatal." If we are to believe all the other advocates of alternating currents, it is simply impossible for the 1,000 volt current to have been on that socket. The truth probably is that he received a slight leakage to the ground from the secondary. But if it is really true that all these men have taken 1,000 volts alternating current without injury, investigation will probably show that they all wear lightning-rods.

222 I have proved by my experiments that a steady, continuous current can be withstood without injury, even at very high potentials; that breaking or alternating the current will produce death at a much lower pressure; that the more rapid the alternations, the lower the pressure required to kill. These demonstrations cause the voluminous objections of my assailants to lose all weight. I have shown that a continuous current will not kill at 1,420 volts if an apparatus is provided to receive the extra current. I think I am, therefore, justified in asking this Honorable Board to adopt Rules 1, 2, 3 and 6, and leave the others until I can prove upon arc light apparatus that they are practical and effective.

223 Let us consider what hardship, if any, is involved by the adoption of Rule 6, limiting the voltage of alternating currents to 300 volts. It means simply this: That the alternating current companies will have to put in mains having three times as much copper as that required with their present voltage. They now say that the cost of their mains is inconsiderable; very well; force them to multiply the cost by 3⅓ and it will not ruin them. At the same time the insulation resistance can be reduced in the same proportion, which will effect a saving in first cost and in leakage. What is gained by forcing this wealthy corporation to buy a few thousand pounds more copper? **Safety from sudden death.**

224

The following paper was then read by Dr. Frederick Peterson:

REPORT OF EXPERIMENTS SHOWING THE EFFECT OF CONTINUOUS AND ALTERNATING ELECTRIC CURRENT ON LIVING ANIMALS.

The effects of electricity upon the human body have been a matter of deep interest and study to the medical profession from time immemorial. more particularly in earlier days, in its powerful form of lightning, and during the present century as a remedial agent. 225

On the persons of human beings lightning often strips off, tears or burns clothing, oxidizes or melts buttons and watch chains, and renders knives magnetic. It may burn the skin and hair, lacerate and perforate the body, fracture bones (*Taylor*), cause extravasations of blood anywhere in the body, such as apoplexies of the brain or meningeal hemorrhages, amputate a limb (*Sycanko, Berl. Klin. Woch.* 1868), or cover the body with curious hyperæmic arborescent marks. Some die from the injuries received only after the lapse of considerable periods of time, as from tetanus in four hours (*Taylor*), or hemiplegia in a month (*Bugge*).

226 Of perhaps a third struck by lightning who live, most are subject to nervous diseases in various forms. They may be unconscious for hours or days, become delirious, even maniacal, have all sorts of paralyses and losses of sensation, be affected with blindness or deafness, or have convulsions, epilepsy or neuralgia. Heusner relates how a thunderbolt struck twenty people, killed four, burned or lacerated the clothing and skin of the rest, and in many made peculiar openings in the soles of the feet as it passed through their bodies into the ground.

The changes to be found on making a post-mortem examination are almost wholly coarse lesions visible to the naked eye, such as laceration of the brain or other organs. *Rigor mortis* is said to 227 appear early (*Goguel*), and often there is a cataleptic *rigor mortis* at the moment of being struck (*Woodman* and *Tidy*, *Handbook of Forensic Medicine*), so that persons are found dead in precisely the attitudes last assumed when living. The blood is dark and unusually fluid.

Of course, the number of volts of E. M. F. in a stroke of lightning is enormous, probably beyond our ascertaining.

Lightning may be imitated by means of frictional electric machines and discharges from Leyden jars. Two men have experimented upon lower animals with this artificial lightning. In 1869 Dr. B. Richardson (*Medical Times*, 1869,) used the gigantic induction apparatus of the Polytechnic Institute of London (weight 228 15 cwt., length of primary coil 3,770 yards, of secondary coil, 150 miles and 41 Bunsen elements). With discharges from this machine and Leyden jars, he killed sheep and rabbits. Post-mortem examinations were then made by Dr. Sedgwick. The blood vessels of the brain were often found distended, the heart gorged on the right side, empty on the left, the intestines intensely congested, and the blood black and fluid. At the same time he passed a shock through bright red blood in a test tube, turning it immediately black, then reddened it again in a jar of oxygen, and again repeated the experiment, thus proving a chemical effect of the electric shock on the blood.

229 In 1880, Prof. Nothnagel, of Jena (*Virchow's Archiv.* vol. lxx.), experimented on a rabbit with discharges from Leyden jars with an ordinary frictional electric apparatus. He did not kill the animal, but produced anaesthesias and paralyses which lasted generally but a few hours, and concluded that it is seldom that lightning injures nerves permanently, that animals are either killed at once or recover from the effects of the stroke.

In medicine our most important electric remedy is the continuous current. The continuous current of a battery may be made to alternate by means of the commutator, producing shocks known as "voltaic alternatives," in other words, alternations of current.

230 In studying the physiological effects of the continuous current upon living nerves it is found that the action of the positive differs from that of the negative pole. The irritability of the nerves is peculiarly altered by each. The phenomena produced are designated as electrotonus. The excitability of the nerves is diminished in the neighborhood of the positive pole or anode and increased in the neighborhood of the negative pole or cathode. These states are respectively termed anelectrotonus and catelectrotonus. Whenever the continuous current is made or broken a contraction of the muscles supplied by the nerves takes place, the closure contraction at the cathode being strongest. It is evident, 231 therefore, that if a continuous current passing through the body be suddenly reversed or alternated, and travel in the other direction, that there is also a reversal of the effects of the two poles. So that the diminished irritability at the anode not only goes back suddenly to normal, but passes that and becomes the increased irritability of the cathode. Hence an alternation of the direction of the current is twice as powerful, its shock twice as great, as that of a mere interruption of the current. To the truth of these statements every physician familiar with electricity and every book on electrical therapeutics and electro-physiology will bear witness.

232 In medical practice we use batteries of comparatively small voltage, generally from 10 to 100 volts, and in treatment we encounter resistance in the human body. The skin is the chief obstacle to the passage of the current, the resistance of the intermediate saline fluids and tissues being almost negligible. "2,500 ohms may be assumed to represent the average resistance of the human body in the usual medical application." (*De Watteville.*) Consequently physicians do not measure current strength by the ampère, but by the $\frac{1}{1000}$ of an ampère or milliampère. We rarely use even 30 milliampères current strength in the treatment of nervous diseases, but sometimes 200 to 500 for the electrolysis of tumors. But even with the mildest currents, scarcely felt when passing continuously through the body and not much felt when

the current is simply made or broken, an alternation may produce 233
considerable pain. Indeed, such an alternation, if passed through the head, will cause giddiness and nausea. De Watteville, our best authority, says, in his book on "Medical Electricity:" "Voltaic alternatives, as such current reversals are called, are indicated where a still more stimulating application than interruptions is required, and a corresponding degree of caution must be exercised in their use."

I am willing to demonstrate on anyone here present that alternating current shocks are more powerful and severe than a continuous current on its mere interruption. As a current will stimulate a nerve in something like $\frac{15}{1000}$ of a second, it is clear 234
that when the continuous current is closed upon a body for any limited space of time, there is but one shock at the closing, and one at the opening of the circuit; whereas, with an alternating current for the same interval of time, the shocks are twice as strong and as many in number as there are reversals of the current per second. If the stimuli are too numerous, say over sixty-five per second, a condition of tetanus is produced in the muscles supplied by the nerves stimulated. The same fact holds good as to currents of any strength. From this it must appear plain that if a continuous current, say of 1,600 volts E. M. F., is sufficient to cause death, then an alternating current of much less than half that voltage must be fatal under the same conditions. 235

This is well illustrated in the experiments recently undertaken. Dog No. 5, weighing 50 lbs., took in succession the continuous currents of 1,000, 1,100, 1,200, 1,300, 1,400 and 1,420 volts, the last the highest voltage at command, and a few minutes later, 1,200 volts for two seconds, and was unhurt by any, skipping about as well as ever when released. Dog No. 6, weighing 55 lbs., was given a 300 volt current, alternating 4,100 times a minute, for two seconds, which caused him to howl and struggle, bite his tongue and bleed at the mouth; then another of 400 volts for two seconds, then a shock of 500, and finally 570 volts of alternating current for three seconds, which killed him. During the latter three shocks 236
the dog was silent and motionless. In dog No. 3, weighing 13½ lbs., 1,000 volts continuous current was fatal, while dog No. 4, weighing more than three times as much, and with 5,000 ohms more resistance than No. 3, was killed by an 800 volt current alternating 2,200 times per minute.

The shocks by the alternating current caused more exhibition of pain, as manifested by greater howling and struggling after opening the circuit, than did those of the continuous current. But the more numerous the alternations per second the greater the number of powerful stimulations, and hence the more serious injury.

Dog No. 2 died from an 800 volt current alternating 1,600 times

237 per minute applied for 3 seconds. He consequently received more than 26 voltaic alternatives per second, or altogether about 80 voltaic alternatives. Dog No. 4 died from an 800 volt current alternating 2,200 times per minute, applied for 2½ seconds, or 91 in all. I am sure a smaller voltage would have killed that dog. Now, since each alternation of the current gives twice as great a shock as an interruption of the current, it follows that the more numerous the alternations of a powerful current the more decided will be its effect. Consequently, by increasing the number of alternations per second, we should expect a smaller voltage to be fatal. This is exemplified in the case of dog No. 6, killed by but 570 volts, the number of alternations having been increased to a little
238 over 68 per second, the duration of contact being 3 seconds. This dog, therefore, received 195 voltaic alternatives. When, with dog No. 7, the E. M. F. was reduced to only 250 volts, while the number of alternations was increased to 288 per second, a contact of 5 seconds killed him at once. Dog No. 8 was killed with but 160 volts E. M. F., administered for 5 seconds, with 288 voltaic alternatives per second.

It is in fact startling to see how small a quantity of E. M. F. is required, provided the alternations of the current be multiplied. In each dog the current was passed from the left hind leg to the right fore leg. The legs were thoroughly wet, wound with wet
239 cotton waste and bare copper wire to which the rheophores were attached, and the animal insulated in a dry wooden box standing on a rubber mat. No external burns or lacerations were made by the current in any of the cases. There was a tendency on the part of the shocks to diminish the number of respirations, and fatal shocks with either current caused respiration to cease before the heart stopped beating. No. 5, who took several severe continuous current shocks, and finally 1,420 volts, all that could be obtained in the laboratory, without injury, was panting at the rate of 120 times per minute at one time, but several shocks reduced the panting to 60 per minute.

Most of the fatal shocks caused relaxation of the sphincters of
240 the bladder and rectum, with involuntary discharge of their contents. Attaching the rheophores, as was done to the fore and hind legs, the current would, by diffusion, pass through the whole trunk, in all probability traversing all the important viscera, besides the larger nervous bodies, the spinal cord, sympathetic system, and the pneumogastric and phrenic nerves. There is one muscle that would receive almost the whole of such a current, and that is the chief muscle of respiration, the diaphragm, with the phrenic nerves distributed throughout its substance. It is possible that a paralysis or tetanic spasm of this muscle causes the immediate cessation of respiration. Dog No. 3 ceased to breathe in two minutes, while the right auricle of his heart continued to

beat 36 minutes longer, even after opening the chest. Dog No. 4 241
ceased to breathe in 15 seconds, while the heart beat for 10 minutes longer. Dog No. 6 ceased to breathe 1½ minutes after he received the fatal shock, but the right auricle continued to beat subsequently for 10 minutes, and 3½ minutes longer under irritation. Autopsies were made immediately after death upon dog No. 3, which died from the continuous current, and on dogs Nos. 4 and 6, killed by the alternating. In all of these dogs the blood was dark and thin, in No. 4 so markedly that the muscles, liver, spleen and kidneys seemed almost black with engorged blood. Immediately after the death of No. 6 I examined some blood from its vena cava under the microscope, but found the red and white corpuscles 242
normal in every respect.

The peristaltic action of the intestines on irritation and the mechanical irritability of the whole muscular system lasted in No. 3 over half an hour, and in Nos. 4 and 6 for 10 minutes. Current not having passed through the brain, that organ was not examined in any of the cases. All other organs were inspected in the three dogs. The lungs were normal in all. The heart was gorged with blood on the right side, and empty on the left in all. The movements of the heart were limited to the right auricle and its appendix. The abdominal viscera were normal, save for their turgidity with blood. There were no extravasations of blood anywhere in them. 243

I examined then the muscles of the legs attached to the rheophores. In No. 4 there was some separation of the thigh muscles and some extravasations of blood between them; in the other two dogs nothing of this kind. I removed for microscopic examination portions of a large nerve from the legs of all the dogs to which rheophores were attached, and also in No. 6 a sciatic from the sound side for comparison. From Nos. 3 and 4 I took several inches of the spinal cord in the dorsal region. Some of these I examined fresh and some after several days' maceration in a solution of bi-chromate of potash. There was a slightly granular condition of the sciatic nerve of dog No. 3, this nerve lying so closely 244
in a small dog to the electrode that in this instance it probably got the brunt of the current. The nervous parenchyma in other parts of the same dog was entirely normal. The substance also of the spinal cord was apparently normal, as viewed under the microscope. But in No. 3 I found the capillaries of the sheaths of the nerves under the spinal cord irregularly gorged with blood, and with here and there capillary extravasations; and this condition was even more marked in No. 4. It is a state known as capillary ecstasy more due to paralysis of the walls of these minute blood vessels. No. 6 died in a state of tetanic rigidity. There seemed to be no certain pathognomonic signs of death by electricity. The changes it produces are peculiarly protean. It enters

245 the body dividing the molecules, separating atoms, disarranging the fine molecular structure of the body, exerting both a chemical and mechanical action, now at one place, now in another, so that, as a rule, neither the eye nor the microscope is able to discover what vital center has been disturbed or destroyed. It changes the color of the blood by chemical action. It produces gross lesions in the organs by its expansive force, just as an egg or the head of a bird, receiving the discharge of a Leyden jar by means of small wires inserted into its opposite sides, is blown to pieces.

246

DEATH-CURRENT EXPERIMENTS AT THE EDISON LABORATORY.

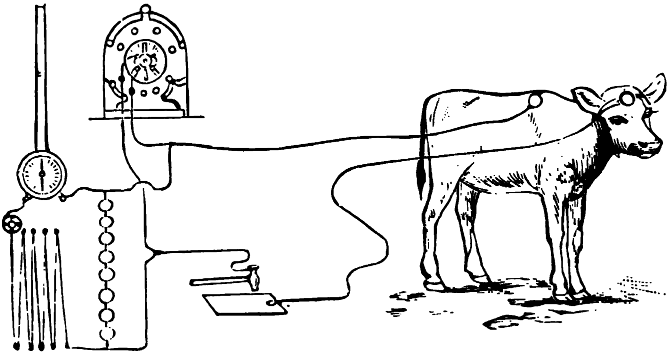
BY HAROLD P. BROWN.

The law requiring condemned criminals to be executed by electricity goes into effect on January 1, 1889, and at the request of Prof. R. Ogden Doremus and others of the committee of the Medico-Legal Society appointed to determine the best means of putting the law into effect, it was determined to experiment with animals of equal or greater weight than a man. The only objec-
247 tion that has been raised to the experiments made upon dogs last summer was that the heaviest weighed but ninety pounds, and it was assumed that much more or higher E. M. F. would be required to make death certain and instantaneous to a human being. I therefore invited the committee and Mr. Elbridge T. Gerry, author of the electrical execution law, to witness tests to determine whether or not this objection was well founded. These tests took place on Dec. 5, at Mr. Edison's laboratory, at Orange, N. J.

The first animal was a calf, weighing 124½ pounds. A sponge-covered disc two inches in diameter was applied to the forehead between the eyes, the hair being first clipped. The second electrode was made of wire netting four inches long and two inches
248 wide, also sponge covered, applied at the left of the spine, back of the shoulders. The sponges were saturated with a solution of zinc sulphate, having a density of 1.054 at 60 degrees Fahrenheit. The resistance between the electrodes was found to be 3,200 ohms. A Siemens alternating current dynamo was used, its field being charged from an ordinary direct current dynamo, and its E. M. F. was regulated by variable resistance in the field circuit.

In the first experiment the main current was passed through the low resistance coil of a large converter made by an electric lighting company, and the calf placed in circuit with the high resistance coil for 30 seconds at 3:50 P. M. Before closing circuit on the subject the Cardew voltmeter showed 1,100 volts E. M. F. in

the secondary, but as soon as closed the potential at once fell to 249
100 volts, and remained stationary. The animal dropped, but was uninjured, and rose to its feet nine minutes later.



250

FIGURE 3.—METHOD OF CONNECTING DYNAMO AND SUBJECT.

The converter was then disconnected and the main current at 770 volts E. M. F. was applied for eight seconds at 3:59 P. M. Death was instantaneous. The animal was at once dissected by Drs. Peterson, Ingram and Bleyer. In the brain the vessels were found filled with blood, but there was no hemorrhage. The brain remained very warm, even after being exposed for ten minutes to 251
the air and immersed in cold water. The heart and lungs were found to be perfectly normal. The hair on the forehead project, ing beyond the sponge touched the metal plate and was scorched, but the skin was uninjured.

The second calf weighed 145 pounds and had a resistance of 1,300 ohms between the electrodes, which were applied as before, the metal of the disc being further protected by wrapping with cotton waste. At 4:26 P. M. the alternating current at 750 volts E. M. F. was applied for five seconds. Death was instantaneous, the heart stopping at once, but reflex movements upon excitation were observed for one and a half minutes. The calves were pronounced
by the butcher to be in good condition before the experiments, 252
and their meat was certified to be fit for food.

To settle the question as to weight, I used as the next subject a horse weighing 1,230 pounds, with halter. His hip had been dislocated, but otherwise he was in good health and condition. Connections were made by wrapping cotton waste saturated in water around each foreleg, and holding that in place with bare copper wires. (See frontispiece.)* This was suggested by Mr. Edison's plan of execution by electricity, in which the criminal was to be held in metal wristlets for electrodes. It was suggested

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*By consent of counsel the frontispiece was omitted, the description of the experiment being sufficiently clear without it.—T. C. B., *Referee*.

253 by the physicians present that with this connection the current would pass through the horse's chest muscles and not reach the spinal nerves or the heart. This proved to be the case, and the contact of the wires on the cotton waste was insufficient. The resistance was 11,000 ohms.

It was attempted to pass an alternating current of 1,200 volts E. M. F. through the animal for the fraction of a second by closing circuit with a rapid blow of a hammer on a metal plate. But in preparing for the experiment the Cardew voltmeter was disabled; a series of lamps was then substituted and the E. M. F. calculated from their number and brilliancy. The current from the dynamo
254 was passed through the converter above mentioned, but with unsatisfactory results in obtaining the desired E. M. F. in the secondary circuit. A large ring converter was tried with no better results; the small ring converter used by me in the dog experiments was then substituted, and the dynamo field-circuit resistance adjusted, until a series of eighteen lamps of the Edison type were brought up to redness in the secondary circuit.

At 5:20 P. M. the current was applied by a single tap of the hammer, but the animal was uninjured. The converter, which was deemed of insufficient capacity for the purpose, was then abandoned, and the dynamo current used. A series of seven lamps was connected to the main wires and brought up to bright
255 redness. At 5:25 P. M. contact with the horse was made for five seconds without serious effect. At 5:27 the same current was applied for fifteen seconds, but with no apparent injury. A series of seven lamps was then brought up to candle-power, indicating 700 volts, and the current applied for twenty-five seconds at 5:28 P. M., during which the water steamed from the cotton waste, showing insufficient metal contact. The result was fatal. In this, as well as in the other cases, death was instantaneous and painless.

These experiments demonstrated beyond question that the alternating current is the best adapted for electrical executions, and, after witnessing its life-destroying qualities, the committee
256 were not a little startled when I told of the results of recent tests for leakage made by me not long since on the circuit of one of the alternating current stations in this city. I grounded one terminal of a Cardew voltmeter in whose circuit was six times its resistance in platinum wire; the other end I touched to one of the primary wires of the circuit. A deflection of 95 degrees with this resistance in circuit would indicate 700 volts; but, to my astonishment, when contact was made the needle turned to 360 degrees, when the protecting fuse burned out.

In the last experiments I determined that I would leave no opportunity for some to say that the subjects were "in a dying condition," and so had them carefully examined by the physicians, present, and the horse photographed. Those who witnessed the experiments were Mr. Thos. A. Edison, through whose kindness I was allowed the use of apparatus; Mr. Elbridge T. Gerry, Prof. R. Ogden Doremus, Prof. Chas. A. Doremus, Dr. Frederick Peterson, Dr. Frank H. Ingram, Dr. J. M. Bleyer, Mr. Galvin, M. Bourgonon, Mr. John Murray Mitchell and Mr. A. E. Kennelly, who kindly took charge of the measurements. 257

PARTIAL LIST OF DEATHS 258

—FROM—

ELECTRIC LIGHTING APPARATUS.

This list, which contains less than one-half the total number of deaths from this cause (or only those the details of which I have been able to obtain during the past 259
year), has been carefully compiled by correspondence and conversations with electric light employees, coroners, city authorities, telephone or telegraph managers, reporters or other witnesses. Any additions or corrections will be considered a favor, but it must be remembered that the officials or employees of the company whose apparatus caused a fatality will do their best to shield themselves. If it is an alternating current company, the blame will be placed on some arc light circuit; if it is an arc light company the fatality will be laid to "heart-disease," to the 260
"fall" or to the man's own "carelessness."

Coroners will do well to remember that death from a properly insulated and equipped arc light circuit cannot occur, unless the subject actually gets into the circuit (no one but an employee is likely to do this); that deaths by touching the circuit at a single point show that the wire is not properly insulated, and that the means for detecting ground connections are inefficient; and that a death from an electric shock is almost invariably indicated by the fluid condition of the blood.

261 The writer wishes again to call attention to the following facts, which have been fully demonstrated by his experiments and tests:

1. Any arc light circuit may be made safe to the public by the use of apparatus, suggested by the writer to detect ground contacts and to protect against the "extra current."

2. No apparatus or device can make safe the alternating current used at more than 200 to 300 volts pressure.

262 3. The continuous current can be kept to its path by proper insulation.

4. No insulation can confine the high-tension alternating current to its conductor; witness the killing of EDMUND RAMEY, JAMES MARONEY, THOS. MADIGAN, JAS. CARNEY and others by a discharge through *insulated wire* of the best character.

5. The continuous current for arc lights was extensively used for five years without killing any one.

6. The alternating current has been used on an extensive scale for less than two years in this country, yet it has 263 already killed more than twenty-five persons. As the insulation wears away and the plants are extended, the death list will be rapidly increased, unless action is taken to prohibit dangerous pressures.

HAROLD P. BROWN,
Electrical Engineer.

264

Atlantic City, N. J.—LOUIS MUND, age 14, killed while playing on the roof of Albrecht's Hotel, Aug. 8, 1888, by contact with grounded pulsating current circuit.

Austin, Tex.—EDMUND RAMEY, porter in billiard hall, killed on roof Aug. 27, 1888, by touching insulated wire on Westinghouse alternating current circuit.

Baltimore, Md.—JAS. HAISLIP, killed Oct. 14, 1888, by touching grounded Brush (pulsating current) circuit.

Brooklyn, L. I.—CHAS. WATSON, killed Nov. 13, 1888, by getting into pulsating current circuit.

Buffalo, N. Y. — Isaac Morton, porter Wagner Palace Car Company, killed Feb. 5, 1888, by touching telegraph wire hanging over insulated Westinghouse alternating current circuit. 265

Canandaigua, N. Y. — Elmer E. Wood, Manager Electric Light Company, killed Dec. 4, 1887, by getting into high-tension continuous current circuit.

Charleston, S. C. — Washington Coaxum, carpenter, killed on roof of Western Union Telegraph building, on Dec. 16, 1888, by touching insulated wire carrying alternating current.

Chicago, Ill. — (Mem. All electric light wires in this city are underground.)

Salesman Willoughby, Hill & Co., killed in elevator shaft by ground on Brush circuit. 266

Chas. Schultz, employee same firm, killed by ground on Brush circuit.

A. C. Holland, killed at Lansing & Sickler's, while adjusting fan motor; got into high-tension continuous current circuit.

Chas. Moeller, engineer Electric Light Company, killed by ground on pulsating current circuit.

Unknown man found dead in basement Globe Hotel; had got into high-tension continuous current circuit.

Employee Electric Light Company, killed under sidewalk by ground on pulsating current circuit. 267

Oscar G. Clark, employee T. & H. Co., killed Oct. 4, 1888, by getting into pulsating current circuit.

Cincinnati, O. — Jas. O'Connell, Stage Manager at Harris Museum, killed Dec. 11, 1887, by ground on Brush circuit.

Wm. Bogardus, house painter, killed while at work, on Oct. 1, 1888, by ground on Brush circuit.

Delancent McMunn, employee Brush Company, killed Oct. 19, 1888.

Cleveland, O. — Visitor at Brush station, killed by getting into circuit.

Dallas, Tex. — Thos. Madigan, plumber, killed while at work in Grand Windsor Hotel, on April 23, 1889, by shock through water-proof insulated wire carrying alternating current. 268

Dayton, O. — Superintendent Electric Light Company, killed by getting into high-tension continuous current circuit.

Detroit, Mich. — Hiram Corliss, employee Brush Company, killed Oct. 3, 1887, by getting into circuit.

Wm. E. Forbes, employee Brush Company, killed Jan. 3, 1889, by ground on circuit.

Five other employees of Electric Light Companies; pulsating current.

Fostoria, O. — Harry L. Hogue, Sup't Brush Company, killed April 2, 1889, by touching grounded circuit.

269 **Halifax, N. S.** — Two linemen, killed by grounded pulsating current circuit, during first week in July, 1888.

Hartford, Ct. — Expert of Electric Light Company, killed by grounded pulsating current circuit.

Hatfield House. — WM. DIMMOCK, laborer, killed by grounded Brush circuit.

Hoboken, N. J. — JOS. O'NEILL, lineman Electric Light Company, killed Aug. 8, 1888, on pole having both pulsating and Westinghouse alternating current wires; character of burns and fact that arc lamps were not running would indicate that the latter killed him.

270 EDWARD BOGART, lineman Electric Light Company, killed Aug. 3, 1888, by Westinghouse alternating current.

JAS. MARONEY, laborer in North River Tunnel, killed while at work, on May 9, 1889, by touching water-proof insulated secondary wire conveying the alternating current.

Jamestown, N. Y. — Employee Electric Light Company, killed by getting into pulsating current circuit.

Lincoln, Neb. — Unknown man, killed by trailing alternating current wire, early in 1888.

Lynchburg, Va. — Lineman, killed in September, 1887, by getting into high-tension continuous current circuit.

Lynn, Mass. — HARRY LOVEITT, Expert T. & H. Company, killed
271 March 30, 1888, by getting into pulsating current circuit.

Marinette, Wis. — Supt. Brush Co., killed by touching grounded circuit.

Memphis, Tenn. — JAS. MCGINNIS, barkeeper, killed Sept. 22, 1888, on the street, by touching dangling telegraph wire in contact with alternating current circuit.

WM. SUMMERVILLE, boy, killed Feb. 6, 1888, by touching grounded Brush circuit.

Minneapolis, Minn. — Three employees Electric Light Company, killed by touching grounded pulsating current circuit.

New Orleans, La. — Employee Brush Company, got into circuit and was killed in September, 1887.

272 HENRY BOERCHER, telephone lineman, killed Oct. 18, 1887, by drawing iron wire over Westinghouse alternating current circuit.

Employee Edison Co., killed October, 1887, by Westinghouse alternating current.

EDWARD MYHAN, employee Electric Light Company, killed Aug. 8, 1888, by alternating current.

Two other employees Electric Light Company, killed by Westinghouse alternating current.

JOHN KRUSER, inspector Electric Light Company, killed Jan. 7, 1889, by Westinghouse alternating current.

CHAS. DEVLIN, killed Nov. 17, 1888, by touching with his

head a Westinghouse alternating current circuit while 273
standing on a damp sidewalk.

New York City. — J. T. Simpson, engineer Adams Express Co., killed May 6, 1887, by touching grounded pulsating current circuit.

Wm. Meier, engineer same company, killed July 16, 1888, by touching same circuit.

Lineman Simonds, killed at a fire on Fulton street, by getting into U. S. Company's circuit; high-tension continuous current.

Waiter in Atlantic Beer Garden, killed by ground on Brush circuit.

Jos. Stamans, killed in December, 1886, by ground on 274
Brush circuit.

Geo. Schneitzer, employee Harlem Electric Light Company, killed Oct. 24, 1887, by touching grounded pulsating current circuit.

Meier Streiffer, peddler, killed on East Broadway, April 14, 1888, by touching hanging telegraph wire in contact with U. S. Company's circuit.

Thos. H. Murray, expert Brush Company, killed May 11, 1888, by touching grounded Brush circuit.

Fred. Witte, clothing salesman, 200 Bowery, killed April
28, 1888, by touching grounded U. S. Company's circuit. 275

Ambrose Hilbert, boy, killed Dec. 11, 1887, by touching hanging telegraph wire which was in contact with grounded pulsating current circuit.

Nelson Richardson, laborer in new aqueduct, killed Aug. 12, 1888, by touching grounded pulsating current circuit.

Robt. Mutrie, tinner, killed on roof of building, on Sept. 8, 1888, by touching grounded pulsating current circuit.

Chas. Heates, killed Jan. 9, 1889, by shock from alternating current circuit; fell and fractured his skull. Either injury was sufficient to cause death.

Michael Ryan, killed Jan. 27, 1889, by touching grounded 276
pulsating current circuit.

Edward Quinn, foreman Brush Company, killed June 28, 1889, by touching grounded pulsating or alternating current circuit.

Paris, France. — Two men, killed by alternating current at opening of Grand Opera House.

Philadelphia, Pa. — Theo. Himmelmann, boy, killed Dec. 18, 1888, at fire, by touching dangling telegraph wire in contact with grounded pulsating current circuit.

Pittsburgh, Pa. — Andrew Reardon, telephone lineman, killed Aug. 7, 1888, by drawing iron wire over insulated Westinghouse alternating current circuit.

277 **Portsmouth, O.**—Engineer, killed by grounded pulsating current circuit.

Pueblo, Col.—Jas. Carney, fireman, killed at a fire on April 27, 1889, by touching Westinghouse alternating current circuit.

Rochester, N. Y.—Three employees Electric Light Company, killed by grounded pulsating current circuit.

St. Louis, Mo.—Ole Anderson, telephone lineman, killed March 13, 1888, by touching grounded pulsating current circuit.

W. R. Ryder, telephone lineman, killed April 14, 1889, by touching grounded pulsating current circuit.

R. Archibald, lineman, killed Feb. 29, 1888, by pulsating current circuit.

278 **St. Petersburg, Russia.**—Officer on the Czar's yacht, killed by alternating current.

Scranton, Pa.—Edward Bross, lineman Brush Company, killed Aug. 8, 1888, by getting into circuit.

St. Paul, Minn.—Jas. Roberts, employee Electric Light Company, killed April 21, 1888, by touching Westinghouse alternating current circuit.

Employee same company, killed by touching Westinghouse alternating current circuit.

Syracuse, N. Y.—Man in Park, killed May 12, 1888, by grounded pulsating current circuit.

279 **Terni, Italy.**—Tinner on roof of building, killed in June, 1888, by touching alternating current circuit.

Toledo, O.—Frank J. Myers, cook, killed Dec. 24, 1888, while closing iron window shutter, which touched grounded pulsating current circuit.

Trenton, N. J.—Engineer Westinghouse Company, killed by touching Westinghouse alternating current circuit.

Turin, Italy.—Employee Electric Light Company, killed in December, 1888, by the alternating current.

Williamsburg, N. Y.—Patrick McGuire, killed in December, 1886, by grounded pulsating current circuit.

280 **Youngstown, O.**—Employee Electric Light Company, killed by getting into pulsating current circuit.

RESUMÉ OF ABOVE LIST.

Number of deaths from arc light circuits during first five years of use	None
Number of deaths from arc light circuits during next seven years	64

Of which the pulsating current caused........................56 281
And the high-tension continuous current caused......... 8
Of these grounded circuits caused..........................42
While within two years, with less than one-tenth the number of dynamos in use, the alternating current has killed.. 24
Add deaths by alternating current prior to 1887............... 3

Total number of deathts in above list................. 91

Of the 64 killed by arc light currents, at least 50 could have been saved by the proper insulation and apparatus. No apparatus could have saved the 27 killed by the alternating current. 282

283

RELATOR'S EXHIBIT "B."

July 17, 1889.

284 (From *Electrical World*, August 11, 1888.)

	No. of Test.	Resistance of Subject.	Calculated Current, Ampers.	Kind of Current.	Result.
	1	7500	.106	C	Died in 15 seconds.
	2	8500	.034	C	Not killed.
	3	8500	.034	A	Not killed.
	4	8500	.094	A	Died in 15 seconds.
	5	6000	.066	C	Not killed.
	6	6000	.100	C	Not killed.
285	7	6000	.133	C	Not killed.
	8	6000	.166	C	Died in 2 minutes.
	9	11000	.072	A	Died in 15 seconds.
	10	6000	.166	C	Not killed.
	11	6000	.183	C	Not killed.
	12	6000	.200	C	Not killed.
	13	6000	.216	C	Not killed.
	14	6000	.233	C	Not killed.
	15	6000	.236	C	Not killed.
	16	6000	.200	C	Not killed. 2½ seconds.
	17	3600	.083	A	Not killed.
	18	3600	.111	A	Not killed.
	19	3600	.140	A	Not killed.
	20	3600	.158	A	Died in 90 seconds.
286	21	14000	.017	A	Died almost instantly.
	22	27500	.005^{8}	A	Died almost instantly.
	23	5000	.022	A	Not killed.
	24	5000	.025	A	Not killed.
	25	5000	.032	A	Not killed.
	26	5000	.030	A	Nearly dead.
	27	5000	.043	A	Died without struggle.

287

RELATOR'S EXHIBIT "C."

July 18, 1889.

THE COMMISSION
ON
CAPITAL PUNISHMENT, 288

No. 25 North Pearl St.,

ALBANY, N. Y.........................188

DEAR SIR: 289

The Legislature of the State of New York in 1886 (Laws of 1886, Chapter 352) appointed the undersigned, a Commission to investigate and report, at an early date, the most humane and practical method known to modern science of carrying into effect the sentence of death in capital cases.

290 It is believed that your views on the subject will materially aid the Commission in the discharge of their important work; and it is hoped, in the interest of humanity, that you will not refuse their request, and will favor them with answers to the following questions:

First. Do you consider the present mode of inflicting capital punishment, by hanging, ob-

291 jectionable? Please give the reasons for your opinion.

Second. Were you ever present at an execution, and, if so, will you kindly state details of the occurrence bearing on the subject?

Third. In your opinion, is there any method known to science which would carry into effect the death penalty in capital cases, in a more humane 292 and practical manner than the present one of hanging? If so, what would you suggest?

Fourth. The following substitutes for hanging have been suggested to the Commission. What are your views as to each?

1. Electricity.
2. Prussic Acid, or other poison.
3. The Guillotine. 293
4. The Garrote.

Fifth. If a less painful method of execution than the present should be adopted, would any legal provision as to the disposition of the body of the executed criminal, be expedient in your judgment, in order that the deterrent effect of capital punishment might not be lessened by the 294 change? What do you suggest on this head?

We remain, with great respect,

ELBRIDGE T. GERRY,
A. P. SOUTHWICK,
MATTHEW HALE,
Commissioners.

To .... Esq.

295

NOTE. 296

Relator's Exhibit "D," being the "Report of the Commission to Investigate and Report the Most Humane and Practical Method of Carrying Into Effect the Sentence of Death in Capital Cases: Elbridge T. Gerry, Alfred P. Southwick, Matthew Hale, Commissioners; Transmitted to the Legislature of the State of New York, January 17th, 297
1888," and constituting a book of about one hundred pages, is by consent of all counsel not printed herewith. A true copy thereof is attached to my original report. A sufficient number of copies could not be obtained to attach to all the printed books, and as the Commissioners' Report is readily accessible as part of the Legislative Records of 1888, counsel thought it unnecessary to incur the expense of printing it here.—T. C. B., *Referee.*

298

299

RELATOR'S EXHIBIT "E."

300 *Tables from work by Dr. Friedrich Jolly, "Leitungs Widerstand des Menschlichen Körpers," (Resistance of the Human Body), Strassburg, 1884.*

N. B.—An Ohm is to a Siemens' Unit as 1 to 1.06.

As to size of electrodes used, etc., see Note at end of this table.
T. C. B., *Referee.*

301 [JOLLY, P. 10.]

RESISTANCE OF DIFFERENT CUTANEOUS SURFACES, IN SIEMENS' UNITS.

302

	Hollow of Hand.	Back of Hand.	Front of Forearm	Back of Forearm	Over Biceps.	Over Triceps.	Temples.
Men	41,300	304,000	353,000	375,000	347,000	364,000	92,500
Women ...	30,900	176,000	270,000	265,000	199,000	242,000	121,000
Gen'l Average	36,100	240,000	327,900	315,500	276,800	306,200	100,750

	Neck.	Shoulder Blades.	Upper Thigh.	Over Peroneal Nerve.	Lower Thigh.	Back of Feet.	Soles of Feet.
Men	219,000	289,000	275,000	217,000	331,000	236,000	23,000
Women....	210,500	300,600	274,000	220,000	302,500	90,000	32,000
Gen'l Average	214,500	294,160	274,670	289,290	322,860	202,300	25,100

303

[JOLLY, P. 11.]

RESISTANCE OF DIFFERENT CUTANEOUS SURFACES IN 10 MALES.

304

Cases.	Hollow of Hand.	Back of Hand.	Front of Forearm.	Back of Forearm.	Over Biceps.	Over Triceps.
1	35,000	230,000	370,000	390,000	330,000	370,000
2	2,800	110,000	280,000	220,000	170,000	250,000
3	45,000	400,000	400,000	400,000	400,000	400,000
4	43,000	400,000	400,000	400,000	380,000	390,000
5	47,000	170,000	180,000	400,000	400,000	400,000
6	55,000	400,000	400,000	380,000	370,000	330,000
7	50,000	170,000	400,000	400,000	400,000	400,000
8	36,000	400,000	300,000	360,000	220,000	300,000
9	22,000	400,000	400,000	400,000	400,000	400,000
10	52,000	360,000	400,000	400,000	400,000	400,000

305

Cases.	Temples.	Cheeks.	Neck.	Neck. Shoulder Blades.	Anterior Upper Thigh.	Near Peroneal Nerve.	Front Lower Thigh.
1	160,000	140,000	170,000	130,000	130,000	260,000 290,000	380,000 24,000
2	28,000	25,000	70,000	140,000	120,000	270,000 370,000	370,000 20,000
3	15,000	15,000	280,000	350,000	390,000	400,000 130,000	400,000 19,000
4	40,000	18,000	140,000	360,000	290,000	330,000 210,000	400,000 32,000
5	170,000	20,000	390,000	40,000	140,000	90,000 100,000	110,000 29,000
6	42,000	43,000	190,000	300,000	300,000	380,000 400,000	400,000 21,000
7	100,000	15,000	350,000	400,000	360,000	370,000 130,000	100,000 19,000
8	100,000	37,000	....	240,000	250,000	290,000 100,000	370,000 15,000
9	80,000	80,000	250,000	300,000	400,000	400,000 150,000	400,000 23,000
10	190,000	40,000	130,000	270,000	370,000	380,000 380,000	380,000 28,000

306

307

[JOLLY, P. 12.]

RESISTANCE OF DIFFERENT CUTANEOUS SURFACES IN FEMALES.

308

Cases.	Hollow of Hands.	Back of Hands.	Front of Forearms.	Back of Forearms.	Over Biceps.	Over Triceps.
1..............	16,000	140,000	....	120,000	....	....
2..............	36,000	200,000	400,000	400,000	400,000	400,000
3..............	22,000	40,000	190,000	130,000	100,000	300,000
4..............	23,000	140,000	330,000	400,000	210,000	230,000
5..............	28,000	200,000	200,000	200,000	100,000	57,000
6..............	38,000	70,000	150,000	160,000	170,000	180,000
7..............	50,000	100,000	110,000	140,000	200,000	210,000
8..............	46,000	120,000	240,000	380,000	180,000	360,000
9..............	29,000	350,000	400,000	400,000	300,000	300,000
10..............	34,000	400,000	400,000	230,000	130,000	140,000

309

310

Cases.	Temples.	Cheeks.	Neck.	Shoulder Blades.	Front Upper Thigh.	Near Peroneal Nerve.	Front Lower Thigh.
1	70,000	60,000	130,000	....	400,000	200,000	390,000
2	140,000	110,000	150,000	290,000	....	....	....
3	54,000	35,000	65,000	95,000	60,000	150,000	140,000 100,000 55,000
4	50,000	40,000	80,000	200,000	400,000	390,000	400,000 90,000 20,000
5	130,000	53,000	300,000	360,000	300,000	....	....
6	26,000	12,000	150,000	280,000	....	....	....
7	70,000	60,000	180,000	....	210,000	140,000	280,000 8,000 21,000
8	180,000	70,000	320,000	400,000	....	....	....
9	190,000	190,000	340,000	380,000	....	....	....
10	190,000	150,000	390,000	400,000	....	....	....

311

[JOLLY P. 16.]

DIFFERENCES IN RESISTANCE OF SKIN AS MEASURED BY DIFFERENT INVESTIGATORS.

Highest resistance being marked first from above downward.

312

DROSDOFF.	
Face	22, 2°
Neck	9, 3°
Spine	7, 1°
Upper Arm	6, 9°
Forearm	4, 5°
Lower Thigh	3, 4°
Sole of Foot	2, 9°
Hand	2, 5°

ERB.	
Cheek	50°
Temple	40°
Neck	35°
Hollow of Knee	26°
Upper Arm	25°
Forearm	22°
Hands & Shoulder Blades,	20°
Loins	5°
Upper Thigh	3°
Lower Thigh	2°

313

TSCHIRFEW & WATTEVILLE.

	Resistance in Ohms.	
Brow	4,000	3,000
Cheek	8,200	6,400
Front Forearm	18,750	14,000
Back Forearm	20,000	14,000
Back of Hand	21,000	15,500
Leg	21,000	23,000
Back of Foot	22,000	24,600
Hollow of Hand	42,000	48,000
Sole of Foot	80,000	50,000

314

JOLLY'S MEASUREMENTS.

	Resistance in Siemens' Units.
Soles of Feet	23,000
Hand	41,300
Cheek	42,300
Temple	92,500
Neck	219,000
Back of Foot	236,000
Upper Thigh	275,000
Back	289,000
Back of Hand	304,000
Lower Thigh	324,000
Upper Arm	355,000
Forearm	364,000

315

316

NOTE TO FOREGOING TABLES.

By request of counsel, entered upon the minutes, the Referee has obtained from Dr. Landon Carter Gray the following statement as to the sizes of electrodes used, etc., in the experiments set forth in the foregoing tables, viz.:

317 "The electrodes used by Jolly were about 12.5 square centimetres in surface area; were moistened with a cold solution of sulphate of zinc, and one Siemens cell was used.

"Drosdoff used 12 Stöhrer cells; size of electrodes not being stated.

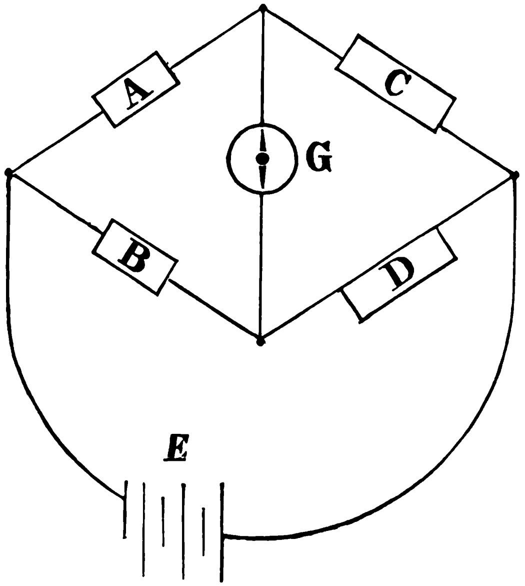
"Tschirfew and De Watteville used electrodes 5 x 12 centimetres in size, covered with leather; cell not being stated."

T. C. B., *Referee.*

318

319

PEOPLE'S EXHIBIT "A."



320

321

DIAGRAM OF WHEATSTONE BRIDGE.

A — Known Resistance. 322

B — Known Resistance.

G — Galvanometer.

D — Known Variable Resistance.

C — Unknown Resistance.

323

PEOPLE'S EXHIBIT "B."

324 *July* 23, 1889.

Resistance, independent of polarization, of 259 male persons of ages from 11 to 51 years; heights from 58 to 75 inches, and weights from 68 to 192 pounds, measured between the hands immersed to the wrists in caustic potash, aqueous solution of density 1.1, by Wheatstone Bridge, $\frac{1000}{1000}$ and 8 volts, at the Edison Phonograph Factory and the Edison Laboratory, July 19th and 17th, 1889. 325

326

No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.
1	Osborne	25	143	5.10½	1,170	170
2	Ballears	33	148	5.7	930	70
3	Barry	34	104	5.5½	1,130	130
4	Garcia	20	109	5.5½	1,590	590
5	Muchmore	29	123	5.6¼	1,090	90
6	Rickelton	45	137	5.8½	870	130
7	Oxley	22	133	5.9½	980	20
8	McNab	21	127	5.9	1,060	60
9	Thrige	23	125	5.7	1,570	570
10	Sandford	51	200	5.7	660	340
11	Smith	33	175	5.11	840	160
12	Gandziger	20	150	5.11	900	100
13	Jaeger	22	136	5.10	1,120	120
14	Archer	22	112	5.6	1,160	160
15	Beane	20	122	5.9	1,000	0
16	Wagner	27	123	5.8½	1,160	160
17	Jordan	34	122	5.7	1,030	30
18	Tremayne	19	150	5.10	1.050	50
19	Bonatt	28	138	5.4	1,010	10
20	Gadsten	21	146	5.10½	950	50
21	Owen	19	122	5.8	1.160	160
22	Payne	21	121	5.10½	1,230	230

327

No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.	
23	Mike	34	160	5.9	960	40	
24	Reiley	20	151	5.9½	1,080	80	
25	Sandford	28	132	5.5½	990	10	
26	Van Halpens	28	139	5.5½	980	20	
27	Nelson	19	119	5.6	1,010	10	
28	Francisco	22	131	5.9½	1,000	0	
29	Therman	20	118	5.10	1,400	400	
30	Wagner	29	121	5.8	1,110	110	
31	Harris	20	137	5.11	1,310	310	
32	Miller	20	159	6.2¾	1,210	210	328
33	Petit	24	116	5.4	930	70	
34	Wells	21	125	5.3	1,160	160	
35	Kerney	27	135	5.6½	1,140	140	
36	Stocker	26	126	5.8	1,080	80	
37	Seward	23	131	5.6	1.060	60	
38	Johnson	29	135	5.9	1,030	30	
39	Sargent	41	110	5.1	870	130	
40	Hasseland	32	192	6.1	870	130	
41	Halswell	21	150	5.10	1,970	970	
42	Atwood	26	141	5.10	920	80	
43	English	34	131	5.7	890	110	
44	Nenninger	26	139	5.9	1,480	480	
45	Butler	24	137	5.8	790	210	
46	Duffy	27	125	5.7	1,120	120	329
47	Soper	17	97	5.6	1,210	210	
48	Ferril	19	132	5.9	1,060	60	
49	Adge	30	127	5.10	1,000	0	
50	Tomlins	34	127	5.7	950	50	
51	Ward	11	68	5.1	1,150	150	
52	Flinn	17	96	5.2	1,030	30	
53	Jones	16	103	5.3	960	40	
54	McLaughlan	18	117	5.7	1,000	0	
55	Bennett	19	130	5.9	1,010	10	
56	Kenealy	17	120	5.8	960	40	
57	Condit	15	93	5.1½	1,040	40	
58	Bannes	22	127	5.9½	950	50	
59	Neary	18	129	5.8	870	130	
60	Kingsbury	25	134	5.8	1,030	30	330
61	Wheeler	25	122	5.9½	760	240	
62	Riker	15	121	5.8	1,150	150	
63	Gibbons	32	165	5.6	850	150	
64	Walters	19	106	5.6½	1,100	100	
65	Dainty	34	145	5.7½	860	140	
66	Renison	25	153	5.7½	850	150	
67	Sloane	27	139	5.5	890	110	
68	Agin	15	75	4.11	1,500	500	
69	Markwith	20	121	5.4	1,150	150	
70	Bray	30	124	5.7	1,010	10	
71	Wright	26	150	5.11	1,100	100	
72	Galligher	27	159	5.9	990	10	
73	Liken	21	135	5.7	750	250	
74	Jennings	22	106	5.6	1,020	20	
75	Logan	21	135	5.8	1,010	10	

331

	No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.
	76	Belingi	25	135	5.7	1,130	130
	77	Nenninger	27	129	5.8	1,190	190
	78	Ferguson	23	126	5.8½	1,280	280
	79	Smith, J. V.	43	191	5.10	950	50
	80	Pfaff	32	158	5.5½	730	270
	81	Kotzer	22	152	5.9½	1,000	0
	82	Wolge	30	144	5.7	1,120	120
	83	Dudley	32	119	5.6½	1,100	100
	84	Klepper	36	174	5.8	810	190
332	85	Diboll	24	129	5.4¼	1,020	20
	86	Pask	24	133	5.10¾	900	100
	87	Studer	30	144	5.4	750	250
	88	Storsberg	36	145	5.6	830	170
	89	Welden	26	178	5.11	780	220
	90	Schindler	23	141	5.6	870	130
	91	Cook	37	130	5.9	1,040	40
	92	Luhr	18	130	5.9½	1,070	70
	93	Friel	22	136	5.9	850	150
	94	Rettig	20	113	5.3	940	60
	95	Wolfurz	29	162	5.6½	660	340
	96	Rugher	25	135	5.7	930	70
	97	Schaufelberger	27	144	5.8	800	200
	98	Loplinger	39	130	5.6	770	230
333	99	Maer	21	137	5.6	870	130
	100	Young	23	150	5.7½	870	130
	101	Zoller	39	136	5.8	840	160
	102	Becker	19	124	5.4	870	130
	103	Kyne	21	112	5.5½	1,010	10
	104	Riley	21	121	5.7¼	1,060	60
	105	Hammond	25	160	5.7	920	80
	106	Graham	22	145	5.11½	990	10
	107	Meyers	33	143	5.3	780	220
	108	Bushnell	22	160	5.9	750	250
	109	Jacobus	21	125	5.8½	950	50
	110	Latotzky	29	151	5.5½	900	100
	111	McIntosh	26	134	5.7	910	90
	112	Vaughan	23	170	5.7½	740	260
	113	Fulton	24	178	6.1	870	130
334	114	Pitter	23	114	5.6½	1,060	60
	115	Luhr	25	166	6.1	1,060	60
	116	Titins	34	160	5.5	830	170
	117	Snider	29	143	5.5	820	180
	118	Spiess	48	122	5.10½	770	230
	119	Sherman	20	148	5.9¼	850	150
	120	Diefenbacher	19	134	5.5	1,000	0
	121	Sloat	19	109	5.4	940	60
	122	Sliffk	32	122	5.4	780	220
	123	Gordan	16	123	5.7½	1,270	270
	124	Gannon	28	112	5.4¼	950	50
	125	Thorpe	22	136	5.8¼	820	180
	126	Schwab	17	115	5.2	950	50
	127	Edwards	18	120	5.7	1,180	180
	128	Dickerson	16	118	5.9½	1,010	10

335

No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.	
129	Howard	17	111	5.5¼	1,450	450	
130	Flinn	21	147	5.7	1,040	40	
131	Barnard	21	140	5.6	850	150	
132	Hammer	28	149	5.8½	860	140	
133	Jordan	14	69	4.10	1,650	350	
134	Nafey	25	133	6.0	1,100	100	
135	Kane	19	119	5.6	1,050	50	
136	Withny	33	144	5.7	1,000	0	
137	Gerry	16	110	5.6½	920	80	
138	Young	26	144	6.0	1,000	0	336
139	Bishop	19	129	5.10	1,320	320	
140	Schreider	30	185	5.10½	750	250	
141	Rittenhaus	22	192	5.10	870	130	
142	Kolb	31	150	5.7	980	20	
143	MacElroy	35	164½	5.9	840	160	
144	Savage	36	183	5.7	810	190	
145	Leeman	27	125	5.8	1,020	20	
146	Chandler	38	154	5.10½	970	30	
147	Pierson	22	125	5.6½	1,080	80	
148	Redfearn	15	103	5.5	1,070	70	
149	Wertz	40	186	5.10	820	180	
150	Howatt	20	138	5.9¼	1,050	50	
151	Ritz	27	176	5.10¼	930	70	
152	Agnew	32	179	5.10	860	140	337
153	Kearney	35	134	5.4	940	60	
154	Coakley	23	158	5.11	1,000	0	
155	Kolb	30	166	5.3	1,280	280	
156	Kinghorn	25	171	5.10	950	50	
157	Fitzgerald	28	148	5.7½	1,050	50	
158	Shay	36	119	5.5	880	120	
159	Beck	21	133	5.4½	1,100	100	
160	Harper	26	102½	5.2½	1,050	50	
161	Conolly	18	117	5.6	1,090	90	
162	Hutchinson	30	124	5.6½	830	170	
163	Littell	14	81	5.1	1,290	290	
164	Spencer	28	120	5.5½	1,050	50	
165	Wadams	20	158	5.11	850	150	
166	Mack	39	154	5.7½	850	150	
167	Walch	17	128	5.8	1,050	50	338
168	Hooper	22	131	5.8	990	10	
169	Kitchell	21	124	5.7	1,130	130	
170	Oran	25	132	5.9	1,000	0	
171	Byrnes	35	129	5.10	840	160	
172	Langert	39	139	5.8	950	50	
173	Markhart	26	140	5.9	850	150	
174	Farnham	22	153	5.10	860	140	
175	Bennett	24	131	5.4½	1,020	20	
176	Hessdorfer	33	119	5.6	910	90	
177	Gamble	27	120	5.5¼	960	40	
178	Forster	21	125	5.8	920	80	
179	Tansey	39	125	5.6	930	70	
180	Riehl	26	149	5.11	950	50	
181	Devine	18	103	5.1	1,330	330	

339

	No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.
	182	Greer	19	145	5.9½	1,420	420
	183	Ohans	19	144	5.9½	1,150	150
	184	Goodwin	19	109	5.2	930	70
	185	Vanness	23	126	5.5	1,180	180
	186	Winter	32	132	5.6	1,030	30
	187	Hall	33	137	5.10	1,050	50
	188	Dalrymple	22	132	5.8	1,300	300
	189	Kidd	28	109½	5.6½	850	150
340	190	Hawes	26	124	5.7	1,170	170
	191	Edge	27	133	5.6½	1,030	30
	192	Mortimer	18	116	5.5½	1,050	50
	193	Burke	21	130	5.7	940	60
	194	Martin	25	144	5.10½	930	70
	195	Lyon	17	122	5.6½	880	120
	196	Hagen	42	161	5.6	900	100
	197	Hobson	19	116	5.5½	1,000	0
	198	Gerken	21	159	5.9	770	230
	199	Cutler	45	143	5.5½	850	150
	200	Haney	25	130	5.10	1,000	0
	201	Grove	18	110	5.4½	1,200	200
	202	Hayden	30	130	5.10½	820	180
	203	Knight	28	127	5.8	1,170	170
	204	Schedan	32	128	5.5	830	170
341	205	Daly	30	130	5.6½	950	50
	206	Holmbia	18	176	6.0¼	1,000	0
	207	Hansell	21	143	5,11	1,050	50
	208	Welsh	20	138	5.7½	880	120
	209	Higginbotham	16	109	5.4	1,030	30
	210	Killimett	33	113	5.7½	1,010	10
	211	Roach	17	124	5.7	1,050	50
	212	McCurdy	30	147	5.7	1,100	100
	213	Clausen	24	162	5.11	670	330
	214	Alford	33	177	6.0	940	60
	215	Stewart	25	154	5.6	910	90
	216	Richard	46	150	5.9½	1,050	50
	217	Corley	33	186	5.11½	820	180
	218	Lawler	26	152	5.9	890	110
342	219	Jacobsen	28	148	5.9	850	150
	220	Kreslicher	39	146	5.5	930	70
	221	Deems	42	115½	5.2½	950	50
	222*	Ott	39	142	5.4	850	150
	223	Lehmann	20	138	5.3	800	200
	224*	Lauste	32	122	5.7	920	80
	225	Goyard	33	126	5.4	870	130
	226	Kayser	33	156	5.8½	670	330
	227	Hipple	34	130	5.5½	820	180
	228**	SchulzeBerge	33½	146	5.9	670	330
	229	Haise	41	180	5.5	700	300
	230	Miller	20	124	5.8	880	120
	231	Aylsworth	20	139	5.9¼	1,000	0
	232	Logue	42	135½	5.7½	880	120
	233	Force	29	125	5.6½	1,000	0

*From 1 to 8 Volts.

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No.	Name.	Age, Years.	Weight, Pounds.	Height, ft. in.	Resistance Ohms.	Variation from 1,000.	
234	Randolph	25	138	5.4	600	400	
235	Devonald	22	135	5.4½	550	450	
236	McGuire	27	122	5.5	870	130	
237	Wheelwright......	37	148	5.9	650	350	
238	Ebdell	49	147	5.9½	670	330	
239	Newbert.............	31	.....	5.3½	790	210	
240	Read	18	131	5.10	1,070	70	
241	Hoffmeier	28	126	5.10	1,000	0	
242	Wurtz.................	48	140	5.4	520	480	
243	Westring	40	140	5.2	1,000	0	344
244	Dixon	30	137	5.10	1,070	70	
245	Brown	42	125½	5.7	1,090	90	
246	Riebe.................	48	141	5.4	1,250	250	
247	Nickon	27	140	5.11½	1,130	130	
248	Friskhorn...........	23	137	5.9	1,170	170	
249	Deschler.............	25	134	5.11½	1,070	70	
250	Rockwell	29	170	5.10	960	40	
251**	Ott, F	30	135	5.5½	1,320	320	
252	Lord..................	59	154	5.6½	910	90	
253	Duncan	20	140	5.7	850	150	
254**	Batchelor	43	150	5.8	950	50	
255	Dahl..................	35	147	5.9	650	350	
256	McGurk	19	119	5.6	920	80	
257	Ludke.................	18	124	5.6	1,400	400	345
258	Magee................	37	156	5.11½	750	250	
259	Fessenden	22	165	6.0½	1,090	90	

Mean of all resistances 986.

DEDUCTIONS.

That the resistance of a man's body taken between the hands
varies with the solution employed for immersion, the duration of
immersion, and the area of skin immersed, together with the su-
perficial condition of the epidermis. That with a fixed solution, 346
immersion and area the resistance does not vary to any appre-
ciable extent with the battery power used in the measurement
when the effects of polarization are eliminated. That with aque-
ous KHO solution of density 1.10 and immersion of the previous-
ly washed hands to the wrist (ulnar condyle) the resistance at
about 30 seconds immersion is about 1,000. That the resistance
per square inch of skin is roughly 10,000 per square inch of
surface, and the hand up to the wrist exposes roughly 100
square inches, so that the resistance of the body itself is roughly
800 ohms.

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PEOPLE'S EXHIBIT "C."

JULY 25TH, 1889.

The following men were tested twice, the time between the two measurements being three hours approximately:

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Name.	Resist'ce in Ohms.		Name.	Resist'ce in Ohms.	
	1st Test.	2d Test.		1st Test.	2d Test.
				9,565	9,415
Evans............	1,235	1,195	Soderstrom	1,120	1,155
Krahe	1,120	1,140	Haush	780	765
Thomson	870	835	Bond	1,210	1,230
Murphy, L.......	1,250	1,210	Connely, J.......	1,220	1,205
Poland	1,140	1,185	Smith..............	1,115	1,140
Garriss...........	1,510	1,480	Berne, H.	1,110	1,075
Metzger..........	1,180	1,150	Hanley	1,350	1,300
Rheinbold	1,260	1,220	Roos	1,015	1,600
	9,565	9,415		8,920	8,930
350				9,565	9,415
				18,485	18,345

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PEOPLE'S EXHIBIT "D."

JULY 25, 1889.

352

July 23d, 1889—Tuesday.

Test of the resistances of about 240 men employed at the Electrical Works of Messrs. Bergmann & Co., 292–298 Ave. B, New York City.

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To make the test, a battery of four (4) Chromic acid cells was used, each having an E. M. F. of 2 volts. The hands of the men to be tested, were immediately before the measurement washed with soap and water, and then immersed into two jars filled with solution of Caustic Potash, sp. gr., 1.10. The tips of the fingers of the stretched hands just touched the bottom of the jars, avoiding to touch the copper electrodes. The time of each test was about 30 seconds.

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Name.	Resistance in Ohms.	Name.	Resistance in Ohms.
	258,560		269,030
Delany. J. H.	1,040	Vogel	1,220
Evans	1,235	Dommel	1,157
Hieronymus	1,239	Batterspy	1,112
Cole	1,137	Bolander, R.	1,202
Sproul	1,026	McGrath	1,150
Marx, G.	1,120	Dell	1,450
Dembster	1,327	O'Niel	1,020
Krahe	1,120	Wagner	1,110
Baton	1,232	Muller	1,200
	10,470		10,621
(227)	269,030	(236)	279,650

355

	Name.	Resistance in Ohms.	Name.	Resistance in Ohms.
	Roesch, Jr.	1,180	Grinthal, J.	1,030
	Sulton	930	Walker	1,120
	Newell	870	Faulkes, G	950
	Cavannagh	1,210	Cooke, B.	1,300
	J. Connely	1,220	Daudurand	1,110
	Lellner	1,030	Charleton	1,030
	Colnon	1,510	Ritz	1,080
	Kennel	1,210	Heoppner	1,120
	Green	1,325	Westall	1,200
356	Callahan	920	Goggins, S.	1,060
	Painter	1,080	Culleswell	870
	Crocker	610	Shaw	990
	Jelle	1,240	Connell	905
	Kuhn, Sr.	1,120	Cooke, J. S.	1,265
	Grinthal, D.	1,170	Riley, Jr.	1,110
	Rach	1,380	Bender	910
	Roesch, Sr.	1,360	Bolander, F.	1,025
	Price	1,130	Johnson, H.	1,365
	Donnelly	1,140	Leil	1,090
	Blackburn	1,020	Sapper	1,015
	Malloy	1,100	Lennstrom, G.	1,300
		23,750		22,845
				23,750
357			(42)	46,595

	Name.	Resistance in Ohms.	Name.	Resistance in Ohms.
		46,595		69,545
	Henstrumm	1,030	Nichols	830
	Gustaw	1,320	Moutie	1,050
	Feseches	1,170	Menger	1,170
	Haush	780	Christe	1,070
	Barclay	1,030	Rossberg	1,250
	Unguent	1,060	Gardner	960
	Kuhn, R.	1,210	Bond	1,210
358	Walby	1,000	Taegler	1,210
	Sherberg	1,170	Loefler	1,040
	Clark	1,110	Hudderman	1,390
	Hall	920	Hoopin	1,060
	Sorg	1,010	Benninger	1,260
	Schultz	1,230	Hoffmann	1,010
	Folet	1,180	Murphy, R.	1,420
	Gruning	1,160	Hertel	1,170
	Kellar	1,060	Faulkes, S.	1,060
	Guion	1,080	Cruckshank	1,230
	Straub	1,350	Rund	1,080
	Schramm	950	Nagal	1,100
	Streckmann	1,000	Dolan, Sr.	1,070
	Young	1,130	Whittmann	1,060
	(63)	69,545	(84)	93,245

Name.	Resistance in Ohms.	Name.	Resistance in Ohms.	
	93,245		119,280	359
Poland	1,140	Gariss	1,510	
Coffey	1,100	Garrity	1,250	
Raoul	1,030	Sauter	1,380	
Morgan	1,340	Metzger	1,180	
Lechler	1,170	Meyerhold	1,050	
Helgesen	820	Waber	1,160	
Kerini	1,110	Sturidan	1,150	
Connelly	1,260	Kissel	1,280	
Swords	1,350	Russt	1,130	360
Merrihew	1,170	Harfling	1,120	
Bollner	1,220	Rheinbold	1,260	
O'Brien	1,325	Spandler	1,150	
Ohler	1,005	Wagner	1,080	
Koenicher	1,185	Miller	1,030	
Saderstrom	1,155	Diehl	1,310	
Sowser	1,170	Marse, S.	1,080	
Moore	1,225	Friese	1,345	
Wiching	1,060	Briggs	1,335	
Boeser	1,370	Fleming	1,115	
Echmonds	1,400	Leask	1,100	
Sauer	1,190	Helstrom	1,105	
Weber	1,240	Schinicht	1,050	
	119,280	(128)	145,450	361

	198,540		233,765	
Smith	1,115	Plumkett	910	
Harrison, B.	1,225	McGinns	1,120	
Blair	1,280	Fulton	975	
Worthington	1,175	Bradley	1,040	
Jewell	1,095	Leveling	1,140	
Painter, C.	1,120	Spergel, S.	915	
Palmer	1,160	Mahoney	1,065	
Plum, G	915	Fanell	1,210	
Cluf	1,165	Hodges	1,105	
Balke	1,060	Galligan	1,250	362
Greer	985	Krause	1,280	
Plum, W.	1,060	Schwick	1,060	
Berne, H	1,110	Petersen	860	
Plum, A.	930	Wade	1,110	
Leyman	1,060	Lawrence	1,010	
Reilly	1,145	Abrams	1,230	
Donavan, Sr.	940	Murray	1,180	
Fleischer	1,110	Kennedy	1,170	
Connelly	1,130	Scherer	1,060	
Hanley	1,350	Roos	1,015	
Waters	930	Spergel, F.	960	
Bornke	1,020	Lang, E.	1,020	
Donavan, Jr.	1,145	Schenk	1,110	
(195)	233,765	(218)	258,560	

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Name.	Resistance in Ohms.	Name.	Resistance in Ohms.
	145,450		171,620
Thomson	870	Singer	1,030
Scanlan	1,200	Noll	1,280
Fronip	1,190	Flanigan	1,390
Frick	1,220	Maish	1,590
Clyne	1,000	Storm	1,180
Lumm	950	Ganz	1,260
Duran	965	Henich	1,200
Goggins, A.	1,302	Behan	1,220
364 Schall	1,070	Stolz	1,250
Harrison, R.	1,500	Simpson	1,300
Dunger	1,310	Satter	1,510
Kohlhatm.	1,082	Strickner	1,120
Holbig	1,290	Helbig	1,220
Mutz	1,370	Ochman	1,320
Tortoni	1,312	Spintler	760
Riley, Sr.	1,210	Metz	1,100
Lang, S.	1,170	Dolan, Jr.	1,010
Murphy, G.	1,250	Heinrichs	1,120
Whalm	1,070	Gunneman	1,070
Kohut	1,320	Decause	1,870
Mayl	1,210	Hennings	1,120
Wilson	1,320	Sculley	1,005
365	171,620	(172)	198,540

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PEOPLE'S EXHIBIT "E."

MICROSCOPICAL EXAMINATION of tissues and organs of Isaac Moulton, Negro, *killed by electricity February* , 1888. *Examination made February 8th and 9th,* 1888. 367

The blood as submitted was black and perfectly fluid; no clotting whatsoever had occurred. Almost all the *red corpuscles* were perfectly preserved, and their outline and color was typical. A small proportion were in the crenated condition. 368 None were broken down or showed any change in that direction, nor was there any debris. On addition of water they underwent the characteristic changes.

The *white corpuscles*—present in normal proportion—were massed together and showed signs of change, in that they were very granula and ragged.

No *fibrin* was discovered, and the few plaques seen were not massed but isolated, free, and in good condition. 369

A portion of the *right ventricle* showed numerous small ecchymotic spots under the v. pericardium. Examination showed these to be confined to the tissues immediately beneath the pericardium. The *heart muscle* was in apparently perfect condition.

The *lung* did not sink in water, was gorged with blood, and cressitated slightly. Examination showed all the vessels widely distended with blood everywhere, and *very* numerous hemorrhages into the air vesicles, so that at

370 least two-thirds of them were entirely filled with blood. Otherwise, there were no changes in the organ.

The *spleen* seemed normal in consistency, but of brighter red color. Examination showed the entire pulp crowded and distended with blood. No change of structure or signs of disease could be detected.

The *liver* looked quite normal, but on examination showed all the vessels distended with blood, but no hemorrhages into the porenchyma were seen. The cells and
371 their arrangement were perfectly normal and there were no signs of disease.

Portions of the extensor and flexor muscles of the arms were examined, and revealed no change from the normal condition. The muscle fibre was perfect in outline and structure; even the nerve endings were in good condition.

The probabilities are that the person died from the combined effects of shock and suffocation from rapid evolution of gases from the blood, brought about by the
372 electric current.

H. G. MATZINGER, M. D.

Court of Appeals.

THE PEOPLE EX REL., KEMMLER,

against

CHARLES F. DURSTON, WARDEN, ETC.

BRIEF ON BEHALF OF THE RELATOR.

WILLIAM BOURKE COCKRAN,
Of Counsel for Relator.

NEW YORK:
EVENING POST JOB PRINTING OFFICE, BROADWAY, COR. FULTON ST.
(Telephone Call "New 626.")

1890.

Court of Appeals.

THE PEOPLE *ex rel.* KEMMLER

AGAINST

CHARLES F. DURSTON, Warden,
&c.

BRIEF ON BEHALF OF THE RELATOR.

Statement of Facts.

This is an appeal from an order of the General Term of the Fifth Department, affirming an order made by the County Judge of Cayuga County, dismissing a writ of habeas corpus sued out by the relator and remanding him to the custody of the defendant.

The relator was indicted, tried and convicted at a Court of Oyer and Terminer, held at the City of Buffalo, in the County of Erie, for the crime of murder, and upon his conviction sentence was pronounced upon him by that Court, pursuant to the provisions of section 505 of the Code of Criminal Procedure, that "*within the week commencing on* "*Monday, the 24th day of June, one thousand* "*eight hundred and eighty-nine, and within the*

"*walls of Auburn State Prison, or within the*
"*yard or enclosure adjoining thereto, the defend-*
"*ant suffer the punishment of death, to be in-*
"*flicted by the application of electricity, as*
"*provided by the Code of Criminal Procedure of*
"*the State of New York, and that in the meantime*
"*the defendant be removed to, and until the inflic-*
"*tion of such punishment, be kept in solitary con-*
"*finement in said Auburn State Prison.*"

The relator was thereupon transferred to the custody of the defendant to await the execution of the sentence.

On the 11th day of June, 1880, he addressed a petition to the Hon. Charles C. Dwight, one of the justices of the Supreme Court, setting forth the nature of the sentence which had been pronounced upon him, and praying for his discharge on the ground that the sentence of the Court was void and of no effect, for the reason that it was contrary to section 5 of article 1 of the Constitution of the State.

A writ of habeas corpus was thereupon issued by Mr. Justice Dwight, directed to the defendant, commanding him to produce the body of the relator before the Hon. S. Edwin Day, County Judge of Cayuga County, at the Court House in the City of Auburn, the 18th day of June, and on the 25th day of June, 1889, to which day the proceedings had been adjourned by consent of all the parties, the defendant made return that he held the body of the relator by virtue of the warrant set forth in folio 4155 of the printed case.

To this return the relator demurred, and upon his offer to prove that the penalty to which he had been sentenced was a cruel and unusual punishment, the County Judge made an order directing that all of the proofs upon the subject be taken by Tracy C. Becker, Esq., an attorney at law in the City of Buffalo, who was appointed Referee for that purpose.

Testimony was thereupon taken in the City of New York and the City of Buffalo by the said

Referee, all of which was duly reported by him to the County Judge. On the 11th day of September, 1889, argument was had on behalf of the relator and on behalf of the warden, and on the 12th day of October, 1889, the County Judge rendered a decision dismissing the writ and remanding the relator to the custody of the defendant.

From that order an appeal was taken to the General Term and a decision was rendered affirming the order of the County Judge. From the order of the General Term an appeal has been taken to this Court.

POINTS.

Point I.

The penalty is one which comes strictly and literally within the constitutional prohibition.

The precise character of the penalty is set forth in the Code of Criminal Procedure in the following terms:

> " *The punishment of death must, in every case,*
> " *be inflicted by causing to pass through the body*
> " *of the convict a current of electricity of sufficient*
> " *intensity to cause death, and the application of*
> " *such current must be continued until the convict*
> " *is dead.*"

That this is an unusual penalty is conceded on all sides. No attempt to inflict a similar one has ever been tried in the history of the world, so far as that history can be traced. The terms of the sentence are in themselves so unusual that they are incomprehensible. The words "current of electricity," are at the best but a figure of speech (see folio 2371). No human being understands what a current of electricity is; its very existence is a matter of dispute. A current of electricity that is sufficiently intense to cause death is unknown to anybody. No man can describe an electrical current or force which will of itself kill a man (folios 2325, 2335, 1591, 2084, 2728, 3908, testimony).

The testimony quoted is mainly that of the witnesses for the State.

On this subject there is substantially no dispute. Where deaths have occurred by contact with electric wires, no traces have been left on the bodies of the victims which would reveal to the most skilled physician the actual cause of dissolution. Whether the deaths have occurred from some subtle influence or pain unknown and indescribable, peculiar to electricity, or whether they were the result of shock caused by the intense anguish of burning, no man can tell (folios 3895, 4018, 3742).

But while no expert, however learned or skillful, is able to state positively that any electrical current will cause immediate death, all are agreed that unless death be instantaneous the agony which would be inflicted by it would be intense beyond description. Some say that its effect would be to carbonize the victim, others that it would result in his mummification, still others that it would cause a straining of the nerves in different portions of the body with such violence as to inflict agony much more intense than any that could be caused by the rack.

While it is not contended that the precise effect of the infliction of the penalty has been affirmatively shown, it is placed beyond doubt that the victim of the experiment would be exposed to the risk of torture. On this subject the County Judge has held that a doubt has been raised but refuses to set aside the law on the ground that it was incumbent upon the relator to prove beyond reasonable doubt that the penalty must necessarily result in torture (see fols. 4227, 4249).

But while it is impossible to describe the effect of an electrical current, so called, upon every human being, there is abundant evidence before the Court as to its effect upon the human frame where heavy charges have been experienced, from both natural and artificial electricity, and the victims have recovered from its effects (see fols. 1753 *et seq.*, 1774 *et seq.*, 1864 *et seq.*, 1903 *et seq.*, 2001 *et seq.*, 2214 *et seq.*, 3300 *et seq.*, 3695 *et seq.*, 3623 *et seq.*, 606 *et seq.*

It has been sought by the Attorney-General to account for the agony experienced by these witnesses, and for their subsequent recovery by various theories of electrical resistance and conductivity, and it is claimed that a scientific application of the penalty would *probably* diminish the dangers of torture and that it would *probably* render death immediate and certain. It will, however, be apparent from an examination of the testimony, that all these theories are purely scientific speculation (fol. 2595).

The views of the man who has been engaged to act as executioner have in the course of this proceeding, been considerably modified. At his first examination he described the machine which he intended to use. He there testified that he contemplated the use of an electrode consisting of a flat piece of metal lined with a sponge, to be applied to the head of the criminal, and in order to avoid burning, he testified that he intended to keep that sponge moistened (fol. 228). As the hearing proceeded it became obvious: (1) that the heat engendered at the point of contact between the wire and the victim would be so great that the sponge would be dried almost immediately and a burning of the flesh would at once ensue; and (2) that the attempt to keep it moist by dropping water upon it would result in deflecting the current so that it would follow the course of the water, and thus avoid the body of the victim—water being concededly a better conductor than the human tissues. As the case now stands, he appears to have decided to place a rubber bag containing some liquid solution on the head of the victim and to pass the electrical current through this liquid into his skull (see page XXXII). How completely within the domain of experiment the whole subject is confined is apparent from this modification of the plan of execution.

Again, it is claimed that by appliances to the skin of the victim it may be possible to diminish the resistance of the body so that the electrical current or influence, or whatever it may be, will enter the human body with facility; but since the cause of death is unknown it is quite possible that this very diminution of the resistance may lessen the deadly effects of the current.

Where death has occurred from contact with a wire, it may have been caused by the shock, or from the frightful burning of the flesh which has invariably marked these accidents. It is claimed that these burnings are due to the heat which is caused by the resistance of the body to the electrical current, and a theory is advanced that a contact can be made between the body and the wire, which would so diminish the resistance that the current would readily enter the body of the culprit. But if it enter the body readily, no man can tell through what portions it will pass. It is contended by the prosecution that it would seek the element of the greatest conductivity, and some evidence has been given to show that the blood is the best conductor, but if its effect upon the blood may be judged by its effect upon other liquids, it will necessarily cause the liquid to become polarized; that is to say, it will cause some of the component parts of the fluid to gather around the positive and others around the negative pole. But where liquids become polarized, the inevitable tendency is toward depolarization, as soon as the electrical force is suspended; that is to say, to a return to their normal condition. Under such circumstances, even if a victim were reduced to unconsciousness by polarization of the blood, he would, upon being placed upon the ground, probably revive (fol. 658).

On the other hand, if the nerves prove to be the more efficient conductors, the electrical current might find a path through the body without touching any of the vital organs (see fols. 706, *et seq.*). The conversion of the nerves into electrical conductors could obviously create the most intense agony, and as the vital organs might not be immediately affected, the victim would continue to writhe in agony until death came by exhaustion to relieve him from his sufferings.

The extent of our positive knowledge on this subject is limited to a very narrow compass. We know that in many instances persons who have come in contact with electrical wires have died. In other instances we know that persons who have endured a longer contact have recovered after suffering the most frightful torments (see fols. 1753 and others, quoted *supra*). The bodies of the dead have yielded no evidence as to the manner in which death was caused (fols. 3895 and others, *supra*); the lips of the living victims have described the tortures which they suffered (fols. 1753 and others, *supra*).

The whole testimony may, therefore, be summed up as establishing beyond dispute:

(1.) That unless death be immediate the torture will be exquisite.

(2.) That no means have yet been discovered by which immediate death can certainly be produced.

It follows, that a person subjected to this penalty will be exposed to a punishment which is certainly unusual, and which *may* be cruel, and it is contended on behalf of the relator that his constitutional immunity protects him, even from the *risk* of torture.

At folio 4279 the learned Justice who delivered the opinion of the General Term declares that "*it was therefore a question of fact whether an electrical current of sufficient intensity and skillfully applied will produce death without unnecessary suffering*," and upon that head, at folio 4297, he says: "*We think that the evidence is clearly in favor of the conclusion that it is within easy reach of electrical science at this day to so generate and apply to the person of the convict a current of electricity of such known and sufficient force as certainly to produce instantaneous and, therefore, painless death. It detracts nothing from the force of the evidence in favor of this conclusion that we do not know the nature of electricity, nor how it is transmitted in currents, nor how it operates to destroy the life of animals and men exposed to its force; neither do we know the nature of the attraction of gravitation, which is the operative force employed in the infliction of death by hanging, nor how that force operates to draw toward each other masses of matter freely moving in space. We know this, and all other forces of natvre by their effects, and we avail ourselves of them in the daily process and pursuits of life with the confidence based upon common experience, without inquiry as to the essence of the force or the mode of its operation.*"

The learned Justice in his discussion has not, however, interpreted the law as it is, but seems to have had before his mind the law as he conceives it ought to be.

The statute in noway provides for the application of the current of electricity in a scientific method, or under chosen conditions of contact, or in any specific way whatsoever. The method of execution is left entirely to the discretion of the jailer, and it is respectfully submitted that the statute which creates the office of warden of the State Prison in no way requires that the incumbent shall possess any knowledge of electrical science any more than it requires him to be skilled in geometry or familiar with astronomy. On the contrary, it is well known that the person holding such office is usually neither an electrician nor a scientist. The provision of the statute, therefore, amounts to nothing more than a direction that the convict shall be killed. Indeed, the actual discretion left to the warden in disposing of the life of a human being is strikingly illustrated by the language of the learned Judge when, in answering the objection that "*We do not know the nature of electricity, nor how it is transmitted in currents, nor how it operates to destroy the life of animals and men exposed to its force;*" he says, "*Neither do we know the nature of the attraction of gravitation which is the operative force employed in the infliction of death by hanging.*"

If the statute provided that a human being were to be killed by the force of gravitation, is it conceivable that the courts would enforce it? Can it be possible that under our constitutional system there is any power in the Legislature to confer upon any officer the absolute power of disposing of human life in any method that might seem to him proper within such a wide extent of authority as would be prescribed by the permission to destroy him by "*the force of gravitation.*" Such a statute would empower the officer to inflict death by taking the convict to the top of a high building, the summit of a rock, to the edge of a precipice and execute him by precipitating him to the ground below. The law providing "*That a prisoner shall be executed by passing a current of electricity through his body, and that the same shall be continued until he is dead,*" permits the warden to experiment upon him in any way that he may think proper. It even permits a wider exercise of discretion than if he were directed to destroy him by invoking "the force of gravitation." It is submitted that the illustration adopted by the General Term is the most conclusive demonstration of the absurd, extravagant and unconstitutional character of the penalty provided by the law.

Point II.

The constitutional inhibition renders any law passed by the Legislature in violation of its provisions, unconstitutional and void.

It is contended by the Attorney-General that the constitutional provision is practically meaningless, or, at most, that it constitutes an admonition to the Legislature which its members may be bound in morals to obey, but which the judiciary have no power to enforce.

It is submitted, on the other hand, by the relator, that article 1 of the Constitution grants to every citizen of this State certain privileges and immunities of which he can neither divest himself nor be deprived by any power whatever.

That the police power of the State is in any way involved in this discussion is manifestly absurd. It is perfectly competent for the Legislature to decree any punishment against any crime within the limits of its constitutional power. In the exercise of the police power it may declare an act hitherto innocent, unlawful in the future. It may extend the death penalty to various offenses, indeed, to any felony. It may make larceny, rape, forgery and robbery capital crimes. But it cannot prescribe a cruel or unusual punishment for any offense. It may take human life, but it cannot experiment with it.

Because the language of this particular section has been copied from the Bill of Rights, and because notwithstanding that enactment it is generally conceded that the power of Parliament is omnipotent, the Attorney-General argues that it was never intended by the framers of our Constitution to restrain the power of the Legislature in this respect.

The fallacy of this argument is apparent from an examination of the other provisions of the first article of the Constitution. Section 1, which declares that no man shall be deprived of life, liberty or property except by due process of law, has been held by the courts to be superior to any legislative enactment, and every law passed in contravention of its terms has been set aside and refused enforcement by the judiciary. But the English Parliament is perfectly competent to confiscate property by means of a bill of pains and penalties.

Trial by jury is made by section 2 the right of every citizen accused of crime. No legislative enactment which impairs that right or in any way restricts it would be enforced by the courts, but Parliament could undoubtedly pass a law empowering judges to try criminal cases without the aid of a jury, and it is entirely within its powers to convict a man of a capital crime without any trial in the courts of law, by means of a bill of attainder. No analogy can therefore be drawn between the powers of Parliament and the powers of our Legislature. The one is omnipotent; the powers of the other are restrained within well defined limits. But it is by no means conceded that even Parliament is competent to abridge the privileges and immunities guaranteed to the subject by the Declaration of Rights and the Bill of Rights. It is claimed by an eminent writer on the English constitutional system that the declaration of rights was in the nature of a compact between the sovereign and the people, by which the crown was offered on the one hand to the Prince of Orange and accepted by him on conditions which no power could modify.

Hallam's Constitutional History, Vol. III.

And see Smollett's History of England, Chap. I.

But it is certain that whatever may be the moral force of an objection to the competency of Parliament to disturb or abridge the operation of the Bill of Rights, yet if a law were passed directly invading its provisions, there is no power under the English constitutional system competent to review its action or to nullify its decrees.

The doctrine of constitutional limitations is peculiar to this country. The privileges guaranteed to the citizen under our Constitution are the fundamental law of the land—the very basis of society itself. Their peculiar characteristic is their inviolability. No matter how strong the popular opinion which prompts a measure; no matter how unanimous the vote by which it passed the legislative body, if it be violative of any constitutional provision the courts have uniformly refused to enforce it.

It is difficult to understand the argument that this particular article should be treated by the courts as a dead and rotten branch of our constitutional system. A provision identical in language is to be found in the 8th amendment to the Constitution of the United States. The Supreme Court has expressly held that it has a binding force and effect, and that the power of Congress to punish crimes was subject to the limitation that the penalty to be inflicted must not be a cruel and unusual punishment.

Wilkeson *v.* Utah, 9 Otto, 130.

When this provision was incorporated into our Constitution it must have been intended to provide that the Legislature, in the repression of crime, should be confined to punishments known to common law. But at common law vengeance had no part in criminal executions. Capital punishment was justified by the ancient law of England only as a means to accomplish the removal of a person whose existence was found to be dangerous to society. Torture and the infliction of unnecessary pain are distinctly disavowed as features of penal executions.

IV. Blackstone Commentaries, p. 11.

Proceedings against Felton for Murder, 3 Howell State Trial, 370.

Proceedings against The Countess of Shrewsbury for Contempt, 2 *Id.*, 674, note (a).

It is submitted by the relator that a proper interpretation of the constitutional provision would exclude any punishments which are purely experimental, and which are not known to the judiciary to be simple and effective means of extinguishing life without the infliction of needless anguish.

When the Federal Constitution was first adopted the absence of any provision restraining the national government from any invasion of the privileges secured to English subjects by the Bill of Rights was made a cause of remonstrance by several States. When it was proposed to incorporate the main provisions of that measure into the organic law of the nation, it was objected by Mr. Hamilton that, since no power was conferred on Congress in the exercise of which the natural rights of citizens were likely to be invaded, it was unwise to insert a positive denial of the power in the Federal Constitution, since to deny what never existed was unnecessary and imprudent.

See *Federalist*, 84.

But Mr. Jefferson contended that in popular governments it was absolutely essential to place limitations upon the powers of a majority, and that true liberty could only be secured by prescribing certain limitations of the governmental power within which a majority would be omnipotent, beyond which they could never encroach.

Jefferson's Works, Vol. III., p. 4.
Id., letter to Mr. Noah Webster, p. 201.

The views of Jefferson prevailed, and the constitutional amendments were adopted.

That the constitutional limitations were intended to apply to the legislative body is apparent from the argument of Jefferson that the provisions in question were necessary to secure the minority against any oppressions or invasions towards which partisan rancor, religious intolerance or personal animosity might impel the majority. For it is plain that the majority could assail the minority only through the legislative branch. It is impossible to conceive that Mr. Jefferson could have referred to any oppression by the majority, except such as might be attempted through their representatives in the law-making body. He could not have referred to riotous or forcible assaults upon life or property. A discussion of constitutional provisions for the protection of individual rights, presupposes the existence of a government able to assert and enforce its authority, and where the powers of that government are limited so as to secure from invasion the rights of every individual within the scope of its protection, the limitation must have been intended to apply to the only body whose decrees in the absence of such limitation could have affected arbitrarily the life, liberty or property of the citizen.

On this branch of the case the Court at General Term seems to have agreed with the relator to some extent, and to some extent to have to have disagreed with him. At folio 4276 the learned Justice who delivered the opinion declares: "*We have no doubt that if the Legislature of this State should undertake to prescribe for any offense against its laws, the punishments of burning at the stake, breaking on the wheel, disemboweling or hanging in chains to perish by exhaustion, it would be the duty of the courts to pronounce upon such attempt the condemnation of the Constitution.*" At folios 4285–6, however, he declares: "*There is nothing in the Constitution of our Government or in the nature of things which gives any color to the proposition that upon a mere question of fact involved in legislation the judgment of the Court is superior to that of the Legislature itself, nor is there any authority for the proposition that in respect to such question relating either to the manner or the matter of legislation the decision of the Legislature can be reviewed by the Court.*"

If the second proposition be true it is difficult to conceive how the first proposition can be correct. If the Legislature be the absolute judge of the character of a punishment its decision must be binding, no matter whether it prescribe burning at the stake, breaking at the wheel, disemboweling or execution by a current of electricity passed through the body of a convict and continued until he is dead. If the Legislature concluded that burning at the stake would be a milder penalty than execution by the rope its judgment and conclusion as to the comparative severity of each punishment would be, according to the opinion of the General Term, final and conclusive upon the Court. If the Court may look at the character of the penalty itself and decide whether it be cruel or unusual, or both, in any instance it can and must scrutinize the character of the penalty described by the Legislature in every instance. It possesses no partial power to review legislative enactments. Its power is either ample and complete, or it does not exist at all. Indeed, it might well be held that burning at the stake constituted a milder penalty even than hanging, for a good many persons have contended that in the former case the victim was smothered by the smoke from the fagots long before the flame reached his body. It is submitted by the relator that every act of the Legislature which provides for the supreme exercise of governmental power involved in the taking of human life is subject to review by the judicial department, and if the enactment violate any of the privileges and immunities guaranteed to the citizen by the Constitution it is the duty of the courts to decline to enforce it.

The Court at General Term seems to have fallen into a misapprehension as to the effect which is claimed for the testimony taken in this proceeding. It is not for a moment contended that the constitutionality of this law depends upon any question of fact. It is, however, submitted that its validity depends upon the construction and interpretation of certain words which to the ordinary human intelligence are incomprehensible. It is a question of science, and therefore, a question of law. When the relator was produced before the County Judge it would have been perfectly competent for that magistrate to have refused to hear any testimony, but to have listened to such scientific arguments as counsel might have thought proper so submit. The testimony taken before the Referee constitutes nothing more than a collection of scientific researches which may be useful in guiding this Court to a determination, and which this Court may absolutely reject at its discretion.

This Court cannot decide this question upon the judgment of any scientist, of any expert, or of any philosopher. It must decide it upon its own knowledge, and upon its own conscience. There is here no issue of fact where a burden of proof rests upon one side or upon the other.

This statute provides a penalty which may be inflicted under the Constitution, or it does not. It is contended by the relator that unless it appears to be clearly consistent with the Constitution, and unless upon its face it protects those rights and privileges of which no citizen can be divested, among which is exemption from torture, the statute cannot be enforced. Even though there should appear to be a strong probability that this penalty could be inflicted mercifully and painlessly, if there remained a risk of torture the Court would be bound to declare the law unconstitutional.

It is contended by the relator that a constitutional immunity is absolute and perfect. It cannot be exposed to hazard or conjecture. No man will pretend that the character of this penalty is certain. If in actual experiment it should result in the infliction of torture, the constitutional immunity would be clearly violated; and if the infliction of this penalty be permitted by the Court then in the event of its resulting in torture, the Court itself becomes a party to its infliction. The learned Judge at General Term seems to hold that unless the Legislature reveal by its enactment a purpose to evade the Constitution, the Court is bound by the declaration which it makes as to its own intentions. Thus, if it declared that the modification of the law is prompted by a spirit of mercy the Court is powerless to interfere, no matter what the actual effect of the change may be. This Court has, however, held that the power of the judiciary to maintain the Constitution cannot be abrogated by anything which the Legislature may choose to do. Thus it has decided that the Legislature by its own declaration that the purpose of an appropriation was a public one, could not prevent the judiciary from inquiring into its character, and if it were found to be actually a local appropriation, the courts would declare it unconstitutional, unless it were passed by two-thirds of all the members.

People *vs.* Allen, 42 N. Y., 378.

Applying this principle to the case at bar, the power and duty of the Court to investigate and determine for itself the actual character of the penalty seem to be established beyond the necessity of discussion.

Point III.

Public policy and the security of our constitutional system alike demand the enforcement of this provision by the judicial department of the Government.

The distinguishing feature of our constitutional system is that every privilege guaranteed to the citizen by its provisions can always be enforced. The most abject, the most depraved, can invoke the intervention of the courts whenever those inalienable rights guaranteed to them by the Constitution are invaded by any power or threatened from any source.

A mere declaration that certain rights and privileges belong to the citizen, in the absence of any provision by which they can be enforced, would be of little or no advantage to him. In popular governments limitations upon the powers of a majority have been the safeguard of free institutions, but these limitations, to be valuable, must be susceptible of easy and effective enforcement.

The French Constitution of 1793 was preceded by a "Declaration of the rights of man," much more elaborate and exhaustive than the English Bill of Rights, or the immunities conferred by article 1 of our Constitution upon the citizens of this State. But the radical defect in that instrument was its failure to provide an effective shield for the citizen when his rights were impaired or invaded.

The French "Declaration of theRights of Man" consisted of thirty-five article, which seem to afford to every citizen the most complete security from violence or oppression.

Its preamble recited that "*The French people,* "*convinced that oblivion and contempt of the* "*natural rights of man are the only causes of* "*calamity in the world, has resolved to explain* "*these sacred and inalienable rights in a solemn* "*declaration, that all citizens by comparing always* "*the acts of the Government with the whole social* "*union, may never suffer themselves to be oppressed* "*and dishonored by tyranny; that the people may* "*always have before its eyes the fundamental pillars* "*of its liberty and its welfare, and the authorities* "*the standard of their duties, and the legislator* "*the object of his problem.*"

Its first article declared that "*The object of so*-"*ciety is the general welfare; government is insti*-'*tuted to insure to man the free use of his natural* '*and inalienable rights.*"

Its second article declared "*These rights are* "*equality, liberty, security and property.*"

Its sixth article declared that "*Freedom is the* "*power by which man can do what does not interfere with the rights of another; its basis is nature; its standard is justice; its protection is law; its moral boundary is the maxim: Do not unto others what you do not wish they should do unto you.*"

Its tenth article provided: "*No one can be accused, arrested or kept in close custody, except in the cases specified by law and according to the prescribed forms.*"

Its eleventh article provided that "*Every order against a person in cases and forms not specified by law, is arbitrary and tyrannical; the person against whom such an order should be executed by force has the right to resist it by force.*"

Its fourteenth article provided that "*Only he who has been first heard or legally summoned, can be condemned and punished, and this only by a law promulgated before the commission of the crime.*"

Its sixteenth article provided that "*The right of property is that by which every citizen can enjoy his goods and his income, the fruits of his labor and industry, and dispose of them at pleasure.*"

Its seventeenth article provided that "*No kind of occupation, employment and trade can be prohibited to citizens.*"

Its eighteenth article provided that "*Every one may dispose of his services and time at pleasure, but he can neither sell himself nor be sold, his person is an inalienable property.*"

Its thirty-third article provided that "*Resistance to oppression is the inference from the other rights of man.*"

Its thirty-fourth article provided, "*It is oppression of the whole society, if but one of its members be oppressed. Oppression of every single member exists when the whole of society is oppressed.*"

It concludes with article thirty-fifth, "*When government violates the rights of the people, insurrection of the people and of every single part of it, is*

"*the most sacred of its rights and the highest of its*
"*duties.*"

It is, however, plain that the "Right of Insurrection" was a remedy too dangerous to be invoked by a single citizen, however grievous the oppression which he was compelled to suffer. The Constitution itself declared that the government had no power to abrogate or impair the "Declaration of the Rights of Man," but it failed to provide a remedy by which any citizen could obtain the enforcement of those rights or protection from invasion of them.

After providing for the various departments of government, the French Constitution closed with a "GUARANTEE OF RIGHTS" in the following terms:

Article 122: "*The Constitution guarantees to all*
"*Frenchmen, equality, liberty, security, property,*
"*the public debt, free exercise of religion, general*
"*instruction, public assistance, absolute liberty of*
"*the press, the right of petition, the right to hold*
"*popular assemblies and the enjoyment of all rights*
"*of man.*"

Article 123: "*The French Republic respects loy-*
"*alty, courage, age, filial love, misfortune; it places*
"*the constitution under the guarantee of all the*
"*virtues.*"

Article 124: "*The declaration of the rights of man*
"*and the constitution shall be engraven on tables to*
"*be placed in the midst of the legislative body and*
"*in public places.*"

But notwithstanding these elaborate declarations the legislalive body became an instrument of oppression which resulted in the frightful massacres that have become known to history as the "Reign of Terror." The convention suspended the constitution and passed decrees by which the revolutionary tribunal was enabled to close the mouths of persons accused of crime and deny them the right of even calling witnesses. Had an independent judiciary been equipped with power to interfere with the operations of that tribunal and discharge its victims from custody no "Reign of Terror" would have disfigured the pages of French history. Yet the Attorney-General insists thst a provision inserted in our Constitution to prevent the infliction of barbarous punishments should be treated as an empty declaration, or as an advice addressed to the Legislature which they may disregard at pleasure. Is not this inviting the Court to step over the edge of the precipice down which othe constitutional systems have fallen in confusion and disaster? Is it not placing our constitutional immunities under the protection of "all the virtues" rather than of an independent and effective judiciary? Is it not a repetition of the French experiment which sought security for its constitutional system in causing its provisions to be "*engraven on tables*" and placed before the eyes of the Legislature? Would not such a conclusion reduce it to a nullity as completely as if the citizen were informed that in order to resist any invasion of his constitutional privileges it would be his duty to invoke the *sacred right of insurrection?*"

But it is not alone in France that we find the dangerous results of all disregard of constitutional limitations. While the moral right of Parliament to abridge the provisions of the Bill of Rights may be open to question, it is certain that for two hundred years the rights guaranteed by that law to the subject (in England, at least), have been uniformly respected. But the Declaration of Right contains no new doctrine. Like the salient provisions of Magna Charta and of the Charters of Henry III. and Edward I., and of the Petition of Right, that instrument was but a recognition of the ancient English common law.

The History of England discloses many periods when the principles of the common law were treated with contempt by the judiciary as well as by the crown. While the rights of the subject were never formally renounced or abandoned, yet, under the Tudor and Stuart sovereigns,

they were openly and wantonly disregarded. It is certain that prior to the accession of the Prince of Orange there was little security for the life or property of the subject who had incurred the hostility of the Court. Political contests prior to the Declaration of Right meant exile or death to the defeated party. The Courts were the instruments by which political revenges were accomplished rather than the asylum of persecuted innocence. We have the authority of Lord Macaulay for the statement that the courts of law were, "*before the Revo-*
"*lution, an unclean public shambles to which each*
"*party in its turn dragged its opponents, where*
"*each found the same venal and ferocious butchers*
"*waiting for its custom. Papist or protestant,*
"*tory or whig, priest or aldermen, all was one to*
"*these greedy and savage natures, provided only*
"*there were money to earn and blood to shed.*"

Macaulay's Essay on Mackintosh's History of the Revolution in England.

And Hallam, in his "Constitutional History," speaking of trials for political offenses, says:

"*Many decisions, before the Revolution, were*
"*made by men so servile and corrupt, they violated*
"*so grossly all natural rights and all reasonable*
"*interpretations of law, that it has generally been*
"*accounted among the most important benefits of that*
"*event to have restored a purer administration of*
"*criminal justice.*"

The respect which has been accorded to the Declaration of Right since the Revolution has given its provisions all the force of a constitutional limitation. It has reformed the judiciary and established the English constitutional system upon a firm and enduring basis. It is plain that if the Bill of Rights had fallen into contempt and disregard, the old order of things would have been restored. The growth of English liberty is concededly due to the respect with which the privileges and immunities of the subject have been treated for the last 200 years.

These privileges have been made the fundamental law of this State, and it is contended, on behalf of the relator, that the security of all government depends upon the strict enforcement of these constitutional limitations. To sustain the contention of the Attorney-General is to rob the constitutional provision of all value and of all importance; to grant the prayer of the relator is to create a wholesome, and in the light of experience we may say, necessary limit to legislative power.

The Court is not asked to deny to the legislative department any function which is essential to the security of society. The Attorney-General asks that a barrier may be thrown down, whose existence has been so salutary that for 100 years no one has ever dreamt of assailing it. If the contention of the Attorney-General should be sustained, the courts for all time to come rob themselves of the power of investigating the character of a punishment. The rack, the thumbscrew and the boot may be revived, and the courts may be compelled to put them in operation. Indeed, these hideous torments may be inflicted for trifling crimes, to which, perhaps, a portion of the population may be more prone than others, and the judges, if the proposition of the Attorney-General be sound, would be powerless to prevent their infliction.

It is submitted by the relator that if one constitutional provision may be invaded with impunity, all other provisions are equally exposed to violation, and that the security and permanency of our system of government are imperilled if any portion of them can be destroyed or impaired.

Point IV.

It being conceded that the infliction of the penalty will expose the relator to the risk of torture, the sentence is in violation of the Constitution, and, therefore, void.

It is not incumbent upon the relator to prove affirmatively that the penalty will necessarily result in torture. If he were able to establish with reasonable certainty the precise effect of the punishment in any particular, he would to that extent, diminish its character of uncertainty.

A law which exposes the Constitution to the risk of invasion is as void as though it provided in direct terms for a violation of constitutional provisions.

On this subject we are not without authority in this State. The provision of the Federal Constitution, which prohibits any State from passing *ex post facto* laws, has been interpreted as forbidding only those statutes which increase after the commission of an offense the penalty decreed against it. It is still competent to pass a law after the fact which would mitigate the penalties of the crime. And where the Legislature, after the commission of a murder, passed a bill by which it was provided that persons convicted of that offense, be confined in the State prison for one year before the infliction of the capital penalty, and that final execution could not take place unless the Governor issued a warrant commanding it to take effect, although it appeared manifestly to be an act of clemency, and although the persons to be affected by it would undoubtedly have preferred to place themselves under the operation of the new, rather than the old law, yet the Court of Appeals, in an opinion delivered by Judge Denio, held that "AS BOTH PARTS *may*, IN ANY GIVEN CASE, BE INFLICTED, AND THE CONVICT IS CONSEQUENTLY, UNDER THIS LAW, *exposed* TO THE DOUBLE

INFLICTION, IT IS, WITHIN BOTH THE DEFINITIONS WHICH HAVE BEEN MENTIONED, AN *ex post facto* LAW."

The People *v.* Hartung, 22 N. Y., page 106.

The same doctrine is laid down even more explicitly by Mr. Justice Earl, who, speaking for this Court, has held that "the constitutional validity of a law is to be tested not by what has been done under it, but what may by its authority be done."

Stewart against Palmer, 74 New York, 188.

Applying this principle to the case at bar, it is plain that where a law is passed, which by its terms exposes a constitutional provision to the *risk* of invasion, the Court is bound to declare the enactment unconstitutional and void.

Any other conclusion would be manifestly absurd and would lead to the most dangerous complications. If the actual infliction of this penalty upon the relator should prove beyond all doubt that it was a torture so frightful that it combined in itself all the worst elements of those tortures which we have hitherto believed to be prohibited by the constitutional provision, the courts, if this application be denied, will still be bound to pronounce the sentence on persons convicted in the future.

Because, if the law be unconstitutional, it must have been unconstitutional *ab initio.* If it be constitutional now, it must always be constitutional. No subsequent developments can change its nature in this respect.

A mistaken conclusion here would be forever irremediable in the Courts. It is, therefore, the manifest duty of this Court to so interpret the constitution that it will refuse to enforce a law which exposes the judiciary to the risk of being compelled to take an active part in the infliction of cruel and unusual punishments upon human beings.

Point V.

The act is unconstitutional, because upon its face it provides for the infliction of an *unusual* penalty.

At folio 4278, the General Term has distinctly held that the mode of death prescribed is conceded to be unusual, and indeed it would be difficult to conceive how anybody could dispute the proposition. The unusual character of the penalty is apparent on the face of the statute, and it is submitted that the Constitution prohibits punishments which are either cruel or unusual.

It is submitted by the relator that the constitutional provision prohibiting the infliction of cruel and unusual punishment, *prohibits and forbids the infliction of any cruel punishment that was unknown to the common law.*

The language of the constitutional provision was borrowed from the Declaration of Right adopted in 1689 by the convention which offered the English crown to the Prince of Orange. The learned Judge who delivered the opinion of the General Term seems to have regarded this feature of the Declaration of Right (see folio 4262 *et seq.*) merely as an enactment prohibiting the infliction of illegal penalties by the English judges. His discussion of this subject appears to have been based upon an article on the Bill of Rights in the "Encyclopedia Britannica" (see folio 4268). Now the Bill of Rights was but the formal enactment by Parliament of the Declaration of Right adopted by the convention, and it was enacted without opposition or discussion. The character of the enactment and the meaning of its provisions can only therefore be ascertained by an examination of the circumstances under which the Declaration of Right was prepared, the reasons and discussions that led to its adoption and the meaning which its framers intended to bestow on its language.

It is contended by the relator that the Declaration of Right was in no sense an enactment, but was a declaration of the ancient English common law, similar in its character to the great charter of King John and to the petition of right presented by Parliament to King Charles I~~I.~~, in 1628, and which was drawn by Sir Edward Coke.

This conclusion is inevitable from an examination of its history.

After the final departure of King James II. from England a convention, or as it styled itself, "a representative of the people," was summoned by the Prince of Orange. It consisted of the lords spiritual and temporal and of all the members who had sat in the House of Commons during any Parliament of Charles II., the only Parliaments whose election was regarded as free.

> Hume's History of England, Chapter 71.
>
> Burnett's History of His Own Times, 803 (Onslow's note).
>
> Macaulay's History of England, ch. 10 ("The Interregnum").

The purpose of this convention was the "settlement of the nation." The resolution of the convention was, that "*King James II. having endeavored to subvert the constitution of the kingdom by breaking* THE ORIGINAL CONTRACT BETWEEN KING AND PEOPLE *and having violated the fundamental laws and withdrawn himself out of the kingdom, has abdicated the government and the throne is thereby vacant.*" This resolution was carried by an overwhelming majority in the House of Commons, but it provoked a bitter and violent discussion in the House of Lords. The existence of an original compact between King and people was the subject of many debates. Some contended that no such compact existed, and asked where it could be found. It was answered that it was to be found in the coronation oaths of the

English monarchs, all of whom had formerly dated their accession from the coronation.

Burnet, 812.
Lingard's History of England, 10th vol., ch. 4.

The divisions between the two Houses resulted in the famous Free Conference.

See Lords' and Commons' Journals February 6, 1689.

The resolution as it came from the Commons was finally adopted by both houses, the throne declared vacant and the Crown conferred upon the Prince of Orange. Before this, on January 29th, it had been asked in the House of Commons, was the nation after the expulsion of James to be placed at the mercy of William without any provision against those acts of oppression on the part of the Crown from which it had been recently delivered? Why should not the *original contract between the King and people* to which so many appeals had been made in the recent reign be now at least reduced to writing? Why should not the new King be told what were the rights of Britons and under what conditions he received the Crown from their hands.

It was objected that the present convention had no power to pass laws; that it had been called for one object only—to fill up the vacancy left by the withdrawal of the late king. It was finally decided that the offer of the Crown should be prefaced by an examination of the arbitrary acts attributed to James and a Declaration of the rights claimed by the convention in opposition to these acts; but that if any amendment of the old laws or any formation of new laws be thought necessary, that task should be reserved to the wisdom of the succeeding Parliament (Parliamentary History, 5th Vol., pages 52 and 58, Lingard, *supra*).

A Declaration of Right was accordingly drawn up after much debate and several conferences between the two Houses. In the language of Bishop Burnett, "*it was thought necessary to frame this instrument so that it should be like a new Magna Charta.*"

Burnet, 852.

Its report to the House is described in the Commons Journal 7th February, 1869, as follows: "Sir "George Trely reports from the committee to "whom the same was referred (the committee ap- "pointed January 29th), to distinguish of such "things as are absolutely necessary to be considered "for the better securing our Religion Laws, and "Liberties as are introductory of new laws from "*those that are declaratory of ancient rights*, and "to draw the same into form, &c."

This Declaration of Right will be found in the Lords' Journal and the Commons' Journal, Feb. 12, 1689.

It recited "That whereas, the late King James "the Second, by the assistance of divers evil coun- "sellors, judges and ministers employed by him, "did endeavor to subvert and extirpate the Protest- "ant religion and the laws and liberties of this "kingdom—

"First: by assuming and exercising a power of "dispensing with and suspending the laws and the "execution of laws without consent of Parliament

* * * * * *

"And, whereas, of late years partially corrupt "and unqualified persons have been returned and "served on juries in trials, particularly in trials for "high treason, which were not freeholders;

"11. And excessive fines have been imposed and "illegal and cruel punishments have been inflicted

* * *

"All of which are utterly and directly contrary to "the known laws and statutes and freedom of this "realm.

"And thereupon, the said lords spiritual and "temporal, and commons, being now assembled, "a full and free representative of this nation, "taking into their most serious consideration the "best means for attaining the ends aforesaid, do, in "the first place (as their ancestors in like cases have "usually done), *for the vindicating and asserting* "*their ancient rights and liberties*, *declare*

"I.—That the pretended power of suspending "laws or the execution of laws by regal authority "without the consent of Parliament is illegal * * *

"10. That excessive bail ought not to be required, "nor excessive fines imposed, nor cruel and unusual "punishments inflicted * * *

"And they do claim, demand and insist upon all "and singular the premises as *their undoubted* "*rights and liberties* and that no declarations, judg-"ments, doings or proceedings to the prejudice of "the people in any of the said premises ought in "anywise to be drawn hereafter into consequence "or example * * *

"Having therefore an entire confidence that his "said Highness the Prince of Orange will perfect "the deliverence so far advanced by him and will "still preserve them from the violations of their "rights which they have here asserted and from all "other attempts on their religion, rights and lib-"erties,

"II.—The said lords spiritual and temporal and "commons assembled at Westminster do resolve "that William and Mary, Prince and Princess of "Orange, be and be declared King and Queen of "England, France and Ireland, etc., etc."

* * * * * *

It will thus be seen that the Declaration of Right was in no sense an enunciation of any new principle. It was not legislation, for it was distinctly conceded that the convention had no power to enact new laws.

The learned Judge who delivered the opinion of the General Term evidently confined his consideration to the Bill of Rights which was, as has been said, merely the formal enactment by Parliament of the Declaration of Right presented to the Prince of Orange by the Convention. But it is respectfully submitted that the account of the Bill of Rights, which is contained n the "Encyclopedia Britannica," affords but a faint glimpse of the character and extent of the great instrument which was adopted by the Convention as its interpretation of the "*original compact between the King and the people.*"

It will be observed that in the Preamble the infliction of cruel and *illegal* punishments is mentioned as one of the grievances under which the subjects had suffered during the reign of James II., while the Declaration itself contains a prohibition against cruel and *unusual* punishments.

The learned Judge seems to have fallen into the error of believing that the prohibition was against cruel and *illegal* punishments, but it is manifest that a prohibition of an illegal punishment would be absurd. The illegality of a punishment is in itself a prohibition of it. The fact that it is illegal means that it is prohibited. To prohibit it a second time could add nothing to the force of the original prohibition. To prohibit an *unusual* punishment is, however, intelligible. It is to restrict the manner in which the power over life and limb may be exercised, and, as we claim, it is to restrict it so as to forbid the infliction of any cruel punishment, except in a manner which was known to the Common Law.

On this subject the Court at General Term, misled probably by some extraordinary statements in the brief of the Attorney-General, declares at folio 4268: "*Besides, in respect to the particular provision here in question at the time of its enactment, the punishments of crime were prescribed not by statute but wholly by the Common Law, and the Common Law in this respect was largely subject to the discretion of the judges.*"

It is difficult to understand how the learned Judge reached this conclusion.

It is an historical fact that in 1688 almost every crime known to the law had been regulated by statute. Even the *peine forte et dure the best authorities believe* was not a common law, but a statutory penalty.

Blackstone's Com., Vol. IV, p. 327.

Penalties for treason had been regulated by various statutes: 25 Edward, 1.1, chapter 2; 1 Edward VI., chapter 12; 1 Philip and Mary, chapter 1.

Mispison of treason: 1 and 2 Philip and Mary, chapter 10, and by 13 Elizabeth, chapter 2.

Misprision of felony, by Westminster 1; 3 Edward I., chapter 9; 8 Henry VI., chapter 12; 21 Jac. 1, chapter 6.

Perjury, by 5 Elizabeth, chapter 9, which made the penalty six months' imprisonment, perpetual infamy and a fine of twenty pounds. At Common Law the punishment was death.

Bribery seems to have been punishable by death at Common Law, but by 11 Henry IV. all judges and officers found guilty of it were condemned to forfeit treble the value of the bribe and be imprisoned at the King's will.

Mayhem, which under the Common Law was punishable by the forfeiture of the same member of which the person injured had been deprived, was regulated by the statutes of 5 Henry IV., chapter 5, and by the 22 and 23 Car. 11, chapter 1, known as the Coventry Act, which made it felony without benefit of clergy.

Rape, which was one of the few offenses punishable by death according to the Saxon laws, was regulated by the statutes: Westminster I; 3 Edward I., chapter 13; Westminster 2; 13 Edward I , chapter 34, and 18 Elizabeth, chapter 7.

Arson was regulated by the statute 8 Henry VI., chapter 6; 21 Henry VIII., chapter 1; 1 Edward VI., chapter 12; 4 and 5 Philip and Mary, chapter 4.

Burglary, which was felony at Common Law, but within the benefit of clergy, was made felony without the benefit of clergy by 1 Edward VI., chapter 12, and 18 Elizabeth, chapter 7.

Larceny was regulated by 9 Henry, 1; 1 Edward VI., chapter 12; 2 and 3 Edward VI., chapter 33; 31 Elizabeth, chapter 12; 18 Edward VI., chapter 3.

Robbery, by statute 23 Henry VIII., chapter 1.

Forgery was regulated by 5 Elizabeth, chapter 14.

Homicide, by a multitude of statutes too numerous to be cited within the compass of this brief.

It will thus be seen that, few, if any, crimes were punishable by the common law at the time of the adoption of the Bill of Rights.

Indeed the ancient English common law was remarkable for the mildness of its penalties.

Among the Saxons the punishment by death was very rare; with torture unknown.

Edmund Burke's Abridgement of English History, Chapter 7.

Fine and compensation seemed to be the theory upon which criminal punishments were administered. A fixed price was placed on the head of the King, of the Prince, of the Bishop or Aldermen, of a Sheriff, a Clergyman or a Ceorl, and it was only where such fine remained unpaid that the person who had made default was put out of the protection of the law and the kindred of the deceased had liberty to punish him as they thought proper.

Hume's History of England, Appendix I.

So all wounds or injuries unlawfully inflicted were made the subjects of compensation, which were regulated by law. The whole history of England since the Conquest reveals a steady and persistent agitation by the common people for the restoration of their ancient institutions.

The great Charter of King John, the Petition of Right and the Bill of Rights did not enunciate any new principle or create any new laws. They were but formal recognitions by the government of privileges which the subject had asserted ever since the estabment of the feudal system. It is a conspicuous feature in the early history of English institutions that whenever the Crown was involved in difficulties, either by foreign wars or domestic turmoils, a demand was made by the people for the restoration of the laws of Edward the Confessor. But these laws, so far as they have come down to us, are not in themselves especially favorable to the subject, and it is now universally conceded that the law for which the English subjects contended so vehemently was the ancient *English Common law* as it existed during the reign of King Edward, the most material articles of which are comprehended in Magna Charta.

Hume's History of England, Chapter 4, note.

While it is true that many of the penalties inflicted by the corrupt judges who made the courts the instruments of royal vengeance before the Revolution were entirely unwarranted either by the common low or by statute, the provision that unusual punishments ought not to be inflicted could not possibly have referred to them. It never had been claimed by the judges that they had any right to administer a punishment which was not known to the law. The arbitrary power of the Sovereign had caused many invasions of the privileges of the subject to be accomplished by the aid of the judiciary, but these invasions were entirely without legal authority.

During the reign of the Tudor sovereigns the rack was frequently used and it was not entirely unknown before the accession of that house. Thus Lord Bacon speaks of Queen Elizabeth's intention to put the author of an objectionable book to the rack as if were a usual exercise of royal prerogative.

See Bacon's apology addressed to the Earl of Devonshire.

But in Felton's case when King Charles the First desired to put him to the torture in order to ascertain if he had any accomplices in the murder of the Duke of Buckingham he asked the opinion of the Judges as to whether Felton might be put to the torture, and "*all the Judges, being assembled at* "*Sargent's Inn in Fleet street, agreed in one that* "*he ought not by the law to be tortured by the* "*rack, for no such punishment is known or alleged* "*by our law.*" So, when Felton was arraigned he plead guilty; "*he offered to have the hand cut off* "*that did the act, but the Court could not upon his* "*own offer inflict that further punishment upon* "*him. Nevertheless, the King sent to the Judges* "*to intimate his desire that his hand might be cut* "*off before execution, but the Court answered that* "*it could not be for in all murders the judgment* "*was the same.*"

Proceedings against Felton, 3 Sta. Trials, 370.

It will thus be observed that however the law might have been violated, there never was a time when, *according to the law of England,* Judges could lawfully inflict punishments at their own arbitrary discretion.

The Declaration of Right, therefore, in providing that *unusual* punishments ought not to be inflicted must have meant something more than a mere prohibition against the inflictoin of punishments which were contrary to the law. It was a declaration that, according to the ancient laws and customs of England, no subject could be exposed to the infliction of any cruel punishment that was unknown to the common law, and in declaring that this was a feature of the original compact between King and people it meant to make that immunity inviolable for ever.

The learned Judge at General Term seemed to regard the Bill of Right as an ordinary enactment of the English Parliament, apparently because the power of Parliament to alter its provisions has never been abridged (4267 *et seq.*).

It is quite true that there is no method known to the English Constitution by which a measure infringing the provisions of the Declaration of Right could be declared unconstitutional or void, but it is equally true that English historians and lawyers have always regarded the Declaration of Rights as something very different from an ordinary statute. It has taken its place in the English constitutional system and has held it quite as firmly as any constitutional provision which has been adopted by any of the United States. An eminent English writer, speaking of the condition of England immediately after the Revolution of 1688, declares that "*the Constitution of England now assumed a new aspect. The power of the Crown was acknowledged to flow from no other fountain than that of a contract with the peoele. Allegience and protection were declared reciprocal ties depending upon each other. The representatives of the nation made a regular claim of rights in behalf of their Constitution, and William the Third ascended the throne in consequence of a capitulation of the people.*"

Smollett's History of England, Chap. I.

The salient features of the first article of our Constitution in almost idendical language can be found in Magna Charta in the Petition of Right and in the Declaration of Right. These great instruments have been always held sacred in England since the Revolution both by King and Parliament. They were however but declarations of principles that had been asserted from the earliest time. They were adopted into our Constitution that they might, in the full significance which they have borne for ages, be secured forever to the citizens of this State and the particular provision now under discussion must therefore be construed to mean precisely what it meant when it was presented by the Convention to the Prince of Orange as one of the constitutional rights of the subject. If it be given that meaning by this Court it must be held to exclude any fanciful or fantastic experiments with human life, and the infliction of any cruel penalty unknown to the common law.

This aspect of the question seems to have been entirely ignored by the Court, which, though it held the penalty to be unusual on its face, did not think that its unusual character was enough to bring it into conflict with the Constitution.

Point V.

The order should be reversed and the relator discharged from custody.

WM. BOURKE COCKRAN,
Of Counsel for Relator.

IN THE

COURT OF APPEALS

OF THE

STATE OF NEW YORK.

THE PEOPLE EX REL. WILLIAM KEMMLER, APPELLANT,

against

CHARLES F. DURSTON, AGENT AND WARDEN, RESPONDENT.

Brief of Attorney-General for Respondent on Appeal from Order of General Term, Fifth Department, Affirming Order of Hon. S. Edwin Day, County Judge of Cayuga County, Remanding Prisoner, in Proceedings under Writ of Habeas Corpus. (Fol. 4304.)

STATEMENT OF FACTS.

William Kemmler, otherwise known as John Hort, was heretofore duly indicted by the grand jury of the county of Erie for the murder of one Matilda Zeigler, otherwise called Matilda Hort, on the 29th day of March, 1889.

Thereafter, and at a Court of Oyer and Terminer held at the city of Buffalo in and for the county of Erie, on the 10th day of May, 1889, the said Kemmler was tried under the said indictment, found guilty and convicted of the crime of murder in the first degree; and thereafter, and on the 14th day of May, 1889, by the said Court of Oyer and Terminer, the said William Kemmler, otherwise called John Hort, was duly sentenced to suffer the punishment of death, to be inflicted by the application of electricity as provided by the Code of Criminal Procedure of the State of New York, within the week commencing the 24th day of June, 1889, within the walls of the Auburn State Prison or in the yard or enclosure thereto adjoining, and that in the meantime he, the said William Kemmler, otherwise called John Hort, be removed to and until the infliction of said punishment be kept in solitary confinement in said Auburn State Prison. (Fols. 4102–4108.)

Thereafter, in accordance with the statutes in such case made and provided, and in conformity with the said sentence, a warrant was delivered to the said Durston, respondent above named, as agent and warden of Auburn State Prison, in the form provided by statute, requiring the said agent and warden to execute said sentence. (Fols. 4102–4108.)

And thereupon the said Durston, agent and warden of the Auburn State Prison, received the said William Kemmler into his custody and now has the said William Kemmler in his custody under the said warrant, and in confinement in the Auburn State Prison. (Fol. 4115.)

Thereafter, and on or about the 11th day of June, 1889, upon the petition of Charles S. Hatch, attorney for the said Kemmler, a writ of *habeas corpus* was issued by the Hon. Charles C. Dwight, Justice of the Supreme Court, to the said Charles F. Durston, agent and warden as aforesaid, requiring him to produce the body of the said Kemmler before the Hon. S. Edwin Day, county judge of Cayuga county, at the courthouse in the city of Auburn, on the 18th day of June, 1889. (Fols. 4109–4111.)

The petition upon which such writ was granted alleges that the said Kemmler is not committed and detained by virtue of any judgment, final order or process issued by a court or judge of the United States, in a case where such courts have exclusive jurisdiction under the laws of the United States, or have acquired exclusive jurisdiction under the laws of the United States by the commencement of legal proceedings in such a court, nor is he committed or detained by virtue of the final judgment or decree of a competent tribunal of criminal jurisdiction, or the final order of such a tribunal, made in special proceedings instituted for any cause except to punish him for a contempt, or by virtue of an excution or other process issued upon such a judgment, decree or final order; and that the cause or pretense of the imprisonment or restraint of the said Kemmler, otherwise called John Hort, according to the best knowledge and belief of the petitioner, is that he was indicted by the grand jury of Erie county for murder in the first degree; that he was tried by the Court of Oyer and Terminer of Erie county and found guilty thereof by a verdict of the jury on the 10th day of May, 1889, and that thereafter and on the 14th day of May, 1889, he was arrainged in said Court of Oyer and Terminer for sentence, and that, contrary to the Constitutions of the State of New York and the United States, and contrary to the objections and exceptions of the said Kemmler, he was sentenced to undergo a cruel and unusual punishment, and that he is deprived of liberty and threatened with the deprivation of life without due process of law, contrary to the Constitutions above mentioned. (Fols. 4093–4099.)

The said writ of *habeas corpus* was served on said Durston, agent and warden of Auburn State Prison. He produced his said prisoner before the county judge of Cayuga county, and made his return to said writ, setting forth that said Kemmler was in his custody by virtue of said conviction, sentence and warrant. (Fols. 4114–4123.) Thereupon the said Kemmler, by his counsel, controverted such return and asked that testimony be taken on behalf of said prisoner to establish that the infliction of the death sentence by the passage of a current of electricity through the body of said Kemmler would be a cruel and unusual punishment, within the meaning of the Constitution of the State of New York.

The Attorney-General objected to the taking of such testimony on the ground that there was no authority in law to warrant the taking of such proof. This objection was overruled, and to such decision the Attorney-General excepted. (Fols. 4163–4168.)

Thereupon the county judge appointed Tracy C. Becker, Esq., of Buffalo, a referee for the taking of testimony bearing upon the question raised by the relator. (Fol. 4168.)

Said referee proceeded to take such testimony as was offered both in support and against the imprisonment and detention of Kemmler, and thereafter, to wit, on or about the 11th day of September, 1889, made return and report of such testimony to the said county judge. (Fols. 4181–4183.)

The questions arising under said writ were then argued before and submitted to the said county judge, who thereafter made his decision remanding the prisoner. Upon such decision an order remanding the prisoner was duly entered in the office of the clerk of Cayuga county. (Opinion by County Judge, fol. 4200.)

From such order the said relator appealed to the General Term, which court affirmed the order of the county judge. (Opinion by Dwight, J., fol. 4254.) From this order relator appealed to this court. (Fol. 4321.)

THE STATUTES TO BE CONSIDERED.

The Revised Statutes provide (2 R. S., 657, § 1): "Every person who shall hereafter be convicted, first, of treason against the People of this State, or, second, of murder in the first degree, as those crimes are respectively declared in this title, shall suffer death for the same."

And, further (2 R. S., 659, § 25), "the punishment of death shall, in all cases, be executed by hanging the convict by the neck until he is dead."

The Penal Code of 1881, section 186, declares: "Murder in the first degree is punishable by death."

The Criminal Code, as originally enacted, section 505, declares: "The punishment of death must, in every case, be inflicted by hanging the convict by the neck until he is dead."

The provisions of the Revised Statutes, which we have above cited, were repealed by chapter 593 of the Laws of 1886.

Chapter 489 of the Laws of 1888, which was approved by the Governor June 4, 1888, and is entitled "An act to amend sections 491, 492, 503, 504, 505, 506, 507, 508, 509 of the Code of Criminal Procedure, in relation to the infliction of the death penalty and to provide means for the infliction of such penalty," effected very material changes in the laws prescribing methods of capital punishment, which may be summarized as follows:

1st. A prisoner under conviction is to be taken to the State prison within the judicial department, instead of to the county prison of the county in which he is convicted.

2d. He is to be executed at the State prison, instead of at the county jail.

3d. The agent and warden is charged with the duty of executing the warrant, instead of the sheriff of the county.

4th. The death penalty is to be inflicted by passing a current of electricity through the body of the convict, and continuing such current until life shall be extinct, instead of by hanging the convict by the neck until he is dead.

5th. The amendments provide special precautions for preventing the publication of sensational details of the execution.

POINTS.

I.

The relator's appeal to the constitutional prohibition against the infliction of cruel and unusual punishment must be ineffectual, for two reasons:

(*a.*) That provision is a prohibition upon the judicial power, the exercise of authority by courts of criminal jurisdiction, and not, in any sense, a restriction upon legislative power.

(*b.*) Even if it should be construed as a limitation upon legislative power, inasmuch as it must be presumed that the Legislature has not made an unconstitutional enactment, and proof *aliunde* to establish unconstitutionality would be incompetent under the writ, it must be held that the statute of 1888 does not offend the prohibition.

(A.)

The prohibition in the form of statute first appears among the acts of parliament, passed during the second session of the first year of the reign of William and Mary, being chapter 2 of the statutes of that year, entitled "An act declaring the rights and liberties of the subject, and settling the succession of the crown," usually known as the Bill of Rights.

The statute recites many tyrannical acts of the late King James II, among others, as follows:

"And, whereas, 9. Of late years partial, corrupt and unqualified persons have been returned and certified on juries in trials, and particularly divers jurors in trials for high treason, which were not freeholders; and, "10. And excessive bail hath been required of persons committed in criminal cases to elude the benefit of the laws made for the liberty of the subject; and

"11. And excessive fines have been imposed and *illegal* and cruel punishments inflicted; and,

"12. And several grants and promises made of fines and forfeitures before any conviction or judgment against the persons upon whom the same were to be levied, all of which are clearly and directly contrary to the known laws and statutes and freedom of this realm;

* * * * * *

"And thereupon the said lords, spiritual and temporal, and commons, pursuant to their respective letters and elections, being now assembled in the full and free representation of this nation, taking into their most serious consideration the best means of obtaining the ends aforesaid, do, in the first place (as their ancestors in like cases have usually done), for the vindicating and asserting their ancient rights and liberties, declare: * * *

"10. That excessive bail ought not to be required nor excessive fines imposed, nor *cruel* and unusual punishments inflicted.

"11. That juries ought to be duly impanneled and returned, and jurors which pass upon men in trial for high treason ought to be freeholders.

"12. That all grants and promises of fines and forfeitures of particular persons before conviction are illegal and void." * * *

"And they do claim and demand and insist upon all and singular the premises as their undoubted rights and liberties, and that no declaration, judgments, doings or proceedings to the prejudice of the people in any of the said premises ought in anywise to be drawn hereafter into consequence or example." * * *

"Upon which their said majesties did accept the crown and royal dignities of the kingdoms of England, France and Ireland, and the dominions thereunto belonging, according to the resolution and desire of the said lords and commons, contained in the said declaration."

The historical reason and origin of the enactment of these provisions in the Bill of Rights of 1689 are not dubious or obscure. The English statutes had not provided specific punishments, such as definite terms of imprisonment or the precise manner of corporal or capital punishment for criminal offenses. The penalties for such offenses were not regulated by statute, but were, so far, at least as the decree of punishment, wholly within the discretion of the judges, under the rules of common law.

During the turbulent reigns of Charles II and James II the judges, obsequious to the crown, had in all cases of treason and offenses against the church laws, inflicted the most grievous punishments, stretching more and more continually their discretion against the liberties of the subject and for the purpose of wreaking the vengeance and spite of persons high in authority.

Macaulay (vol. I, 487, 488), in speaking of the case of the notorious Titus Oates, says: "He was sentenced to be stripped of his clerical habit, to be pilloried in Palace Yard, to be led round Westminster Hall with an inscription declaring his infamy over his head, to be pilloried again in front of the Royal Exchange, to be whipped from Aldgate to Newgate, and after an interval of two days, to be whipped from Newgate to Tyburn. If, against all probability, he should happen to survive this horrible infliction, he was to be kept close prisoner for life. Five times every year he was to be brought forth from his dungeon and exposed on the pillory in different parts of the capitol." (State Trials, vol. II, p. 1315.)

And, further on, the historian says: "Merciless flogging soon became an ordinary punishment for political misdemeanors of no very aggravated kind. Men were sentenced, for hasty words spoken against the government, to pain so excruciating that they, with unfeigned earnestness, begged to be brought to trial on capital charges and sent to the gallows. Happily the progress of this great evil was speedily stopped by the Revolution and by that article of the Bill of Rights which condemns all cruel and unusual punishments."

Brief citations of sentences imposed by the courts during the reigns of the last two Stuarts will illustrate the undoubted purpose of parliament in enacting the Bill of Rights, as stated by Macaulay (*supra*).

During the reign of Charles II, while James, Duke of York, was Viceroy of Scotland, the Covenanters were tortured by the infliction of the boot. (Macaulay, 1, 497.)

Certain Scotch rebels were sentenced to mutilation. On a single day the common hangman of Endinburgh cut off the ears of thirty-five prisoners, pursuant to sentences imposed by the courts.

Several women were transported, first having been branded on the cheek. (Macaulay, 1, 569.)

During the Bloody Assizes, Jeffreys sentenced Alice Lisle, convicted of trivial complicity in Monmouth's Rebellion, to be burned alive on the very day of her conviction. (Macaulay, 1, 643; State Trials, vol. 11, p. 375.)

The same ferocious judge sentenced a woman, for an offense similar to that of Alice Lisle, to be whipped through all the market towns of the county of Dorset. (Macaulay, 1, 649, 650.)

Jeffreys sentenced eight hundred and forty-one persons to transportation, with conditions attached to the sentence that practically imposed slavery upon them. (Id., 651.)

Elizabeth Gaunt, for concealing James Barton, accused of conspiracy, was burned at the stake at Tyburn. (Id., 664; State Trials, vol. 11, p. 447.)

One Bateman, a surgeon, for having given professional treatment to Titus Oates after the latter had received seventeen hundred lashes pursuant to his sentence, was tried, convicted, hanged and quartered. (Id., 666; State Trials, vol. 11, p. 474; for other cases, *vide* State Trials, vol. 11, pp. 450, 483, 878, 1356 n.)

The very language of the Bill of Rights indicates that it was intended, by the prohibition against cruel and unusual punishments, to put a check on the officers of the crown and not to lay down a policy for future legislation.

At the outset, the statute recites abuses, and in the enacting portion it forbids the continuance of those abuses precisely. Thus, in the tenth and eleventh recitation of the preamble, it states that excessive bail has been required, excessive fines imposed, and illegal and cruel punishments inflicted, and in the tenth division of the statute proper, it declares that excessive bail ought not to be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted. The same correspondence is preserved between the recitals of the preamble as to other abuses, and the forbidding the continuance of such abuses by the statute proper.

It must be noted that in the preamble the term *illegal* and cruel punishments is used, which, in the enactment, becomes cruel and unusual punishments.

Within the meaning of the Bill of Rights, therefore, a *cruel and unusual* punishment is one that is *cruel and illegal.*

In enacting the Bill of Rights, parliament, in the nature of things, could have had in mind only a restriction of the judges and other officers appointed by the crown, not the legislative power.

The judges were the creatures of the king, removable at his pleasure. Not till long after 1689 were they made independent of the crown. (Blackstone's Com., 4, 440.)

No parliament could bind a future parliament; but parliament could bind the king, and the Bill of Rights was a statement of the conditions with which William and Mary received their crowns.

THE BILL OF RIGHTS DID NOT CHANGE THE LAW. IT ONLY DECLARED WHAT THE LAW OF ENGLAND, AS TO THE RIGHTS OF THE SUBJECT, WAS. (*Vide* Sir Erskine May's Law of Parliament, p. 5.)

It did not change or restrict the penal common law in any respect. We have been unable to find, after a most careful, studious search, a single instance wherein it was ever claimed or contended, in behalf of a person on trial in an English court, that the prohibition against cruel and unusual punishments contained in the Bill of Rights had repealed, by implication, or modified in any respect, the rules of the common law prescribing penalties for offenses.

The common-law definitions of offenses and its penalties therefor continued in force, notwithstanding the Bill of Rights, for nearly a century after the enactment of that statute, witout material change, both in England and in many of the colonies.

Blackstone's Commentaries were written between 1756 and 1765. The closing chapter of that great work is entitled: Of the Rise, Progress and Gradual Improvements of the Laws of England. In that chapter the commentator speaks particularly of the changes in the law which took place after the Revolution of 1688, and states that while by statute the terrible judgment of *peine fort et dure* had been abolished and the privilege of the clergy practically discontinued, *the penalty of death, capital punishment, had been extended to a large number of offenses not before punishable with death.*

Certainly the Bill of Rights had not been considered or insisted upon as a check upon severe punitive legislation during the period he had in mind.

The history of the administration of the criminal law in the American colonies during the seventeenth and eighteenth centuries clearly enforce the same fact, that the Bill of Rights was never interpreted as making any change or mitigation in the common criminal law.

The English colonists brought the English law, common and statutory, with them to America. The Puritans of Massachusetts, adherents of the same political party that procured the enactment of the Bill of Rights, certainly never indicated in their administration of the criminal law that there was any ground for thinking that that statute imposed any restraint upon legislation or mitigated in any way the penal common law. It would, indeed, be an abhorrent, if not a profitless, task to enumerate the extreme penalties that they inflicted upon innocent women and inoffensive men, in the name, under the rules and according to the procedure of the common law, both before and after the passage of the Bill of Rights.

One illustration as to the permanency and absurdity of certain of the criminal regulations of the common law is found in the case of the soldiers tried for the Boston massacre in 1770. All were acquitted except Kilroy and Montgomery, who were found guilty of manslaughter. They demanded the right of clergy because they could read. It was conceded to them. Thereupon they were branded in their left hands and were discharged from custody. (See History of Trial, Boston Massacre.)

In the colony of New York many instances are recorded of the infliction of the extremest penalties of the common law down to a date so late as the middle of the eighteenth century.

The opinion of the court in Done v. The People (5 Park. Crim. R., 364, 383), states historical illustrations. Bayard and Hutchins were indicted and tried for treason about the year 1700. They were convicted and sentenced to be hung, disemboweled and quartered. In 1707, an Indian and negro were indicted, tried and convicted of murder. The Indian was hung and the negro, being a woman, was burned at the stake. In 1712 twenty-seven negroes were convicted of murder and twenty-one were executed; some were burnt, others hanged, one broke on the wheel and one hung alive in chains. In 1741–42 thirteen blacks were burnt at the stake for murder. In 1772 or 1773, a negro was burned at the stake for rape of a white woman.

The penal regulations of the common law continued in full force in New York, colony and State, until the year 1788, when a statute was passed, entitled An Act for punishing treasons and felonies, and for the better regulating the proceedings in case of felony.

This statute was a very comprehensive regulation, both as to penalties and procedure in cases of felony. It restricted the penalty of death to cases of treason, murder, rape, buggery, burglary, feloniously taking chattels from a place of worship; feloniously breaking into a tenanted house by night or day; robbing any person in his own house by night or day, other persons being in or about such house; willfully burning any house or barn; maliciously maiming or wounding;

forgery; counterfeiting; aiding or abetting any of the foregoing offenses. The statute prescribed hanging by the neck as the method of infliction of the death penalty.

The act further declared that all other offenses of the grade of felony, except those above mentioned, should, for the first offense, be punished by fine, imprisonment or corporal punishment in such manner as the justices before whom the conviction might be had, should think proper; and that second offenses should be punished by death.

The act, in the third section, abolishes the punishment of *peine fort et dure;* also the benefit or privilege of clergy.

The statute above mentioned was followed in 1796 by an act making alterations in the criminal law of this State, and for erecting State prisons, being chapter 30 of the laws of that year. Its preamble is as follows:

"*Whereas*, The dictates of humanity and the principles of justice require that the punishment of crimes shall be proportioned to the different degrees of guilt of the offenders; therefore," etc.

This act did away with the death penalty for all offenses theretofore punishable with death, except in the cases of murder, treason and stealing from a church, and substituted imprisonment for life in its stead.

It is also enacted that in the cases of other felonies not theretofore punishable with death, the accused, upon conviction, should be imprisoned in a State prison for a period not exceeding fourteen years for the first offense, and for second offenses in a State prison for life.

It also enacted that petit larcenies should be punished by imprisonment in such prison for one year. It also abolished whipping as a penalty, and made other reforms in the criminal law.

Our deductions from the historical facts above set forth, as to the original intent of the prohibition against cruel and unusual punishments may be summarized thus:

That prior to the last decade of the eighteenth century the definitions of crimes and the punishments therefor were not matters of statute, but were solely determined by common law.

That while the rules of common law fixed generally the form of punishment for specific offenses, the degree of such punishments rested in the discretion of the judges.

That, by immemorial custom, certain limitations upon the discretion of the criminal courts in regard to degree of punishment had become established.

That the judges in the reigns of Charles II and James II had deliberately disregarded such limitations.

That the prohibition against cruel and unusual punishments was simply and intentionally a prohibition against the illegal usurpations of the courts of criminal jurisdiction, and was not intended as a restriction upon the legislative power.

THE PROHIBITION AS CONTAINED IN THE FEDERAL CONSTITUTION.

The eighth amendment of the Federal Constitution is not, in any sense, a restriction upon the States, and was intended only as a check upon the Federal government.

Jackson v. Wood, 2 Cowen, 819.
Barker v. People, 3 Cowen, 686, 701.
Barron v. Baltimore, 7 Peters, 243.
Pervear v. Commonwealth, 5 Wall., 475, 480.

A passing notice, however, should, perhaps, be given to such amendment in our consideration of the historical intent of the prohibition against cruel and unusual punishments.

Immediately upon the submission to the States of the work of the convention of 1787 controversy and strong opposition to the proposed Constitution arose in certain of the commonwealths. The grounds of this opposition were various—multifarious. It became obvious, however, that the Constitution would be approved by the requisite number of States. Thereupon the opposition seems to have concentrated their efforts to secure the addition of a bill of rights, partly because any proposition to amend would have the possible result of opening the door to radical changes, and partly because it was thought advisable to attach as many assurances of individual liberty as possible to an instrument defining governmental powers and limitations, yet to be construed and tested by actual experience. *Magna Charta* and the Bill of Rights of 1689 were naturally resorted to as the time-honored declarations of the rights of freemen, and various provisions from such instruments were suggested as proper to be attached to the Constitution as a Bill of Rights.

Massachusetts, in its ordinance accepting the Constitution, proposed nine amendments. South Carolina proposed four. New Hampshire proposed twelve. Virginia proposed a bill of rights and twenty amendments. New York proposed thirty-two amendments. North Carolina proposed a declaration of rights and twenty-six amendments. (See McMaster's Hist. Peo. U. S., vol. I, p. 501.)

Congress, in 1789, by resolution, submitted ten amendments to the States, which were adopted in the constitutional manner. Of these, the eighth declares that excessive bail shall not be required nor excessive fines imposed, nor cruel and unusual punishments inflicted.

There is no doubt whatever that the agitation which led to the adoption of the first ten amendments was entirely theoretical. This fact appears upon examining the political history of the times and the debates in the conventions of the various States. (See Elliot's Debates — *ubique.*)

It will, moreover, be borne in mind that the criminal law at this time was still, for the most part, common law. In none of the States had statutes codified it. The courts still hold a wide latitude of discretion as to the degree of punishment to be imposed.

The new Constitution conferred only limited powers of legislation in criminal matters upon Congress. Those powers were:

To provide for the punishment of counterfeiting the securities and current coin of the United States.

To define and punish piracies and felonies committed on the high seas, and offenses against the law of nations. (Art. 2, § 8.)

To declare the punishment of treason. (Art. 3, § 3.)

To exercise exclusive legislation in the District of Columbia, and in all other places purchased by the government. (Art. 1, § 8.)

The common-law penalty for treason and counterfeiting was not abrogated in England until the year 1814. (C. 146, 54 Geo. III.)

The most jealous patriot could have not feared that Congress would invent more frightful tortures for persons convicted of treason, counterfeiting and piracy than were the usual punishments of such crimes at common law.

The debates in Congress on the amendments do not give us much light as to the intent of the eighth. What was said, however, warrants our assertion that the motive that led to its adoption was merely theoretical, if not a more sentimental admiration for the Bill of Rights of 1689.

See Lloyd's Debates, 225.

Mr. Smith (of S. C.) objected to the words "nor cruel and unusual punishments," the import of them being too indefinite.

Mr. Livermore — "The clause seems to express a great deal of humanity, on which account I have no objection to it; but as it seems to have no meaning in it, I do not think it necessary. What is meant by the terms excessive bail? Who are to be the judges? What is understood by excessive fines? It lays with the court to determine. No cruel and unusual punishment is to be inflicted; it is sometimes necessary to hang a man, villians often deserve whipping, and, perhaps, having their ears cut off; but are we in the future to be prevented from inflicting those punishments because they are cruel?"

In view of the history of the eighth amendment of the Federal Constitution, and the common law then existing, and the fact that the purpose of the prohibition as contained in the Bill of Rights of 1689 was well understood, it seems to us clear that the amendment was not intended as a check upon legislation, but as a restraint upon the courts.

THE PROHIBITION IN THE STATE CONSTITUTION.

The first Constitution is silent upon the subject. In the Constitutional Convention of 1821 the clause was proposed as part of a Bill of Rights, but was rejected.

Ambrose Spencer, in opposing it, said: "I think much of the Bill of Rights—redundant, perhaps, indeed, where rights are so well understood as in this country, it is useless to have any bill setting them forth; yet, upon the whole, it was deemed proper to keep before the eyes of the Legislature a brief and paramount declaration of rights, beyond which they cannot go. There was one part of this Bill of Rights, which, I think, however, quite useless, that restraining from cruel and unnecessary punishments — now, no punishment can be inflicted but by law — and if the Legislature pass the laws inflicting punishment, the punishmen, whatever it be, will not be considered by them as cruel."

Vide Clarke's N. Y. Conv., 1821, pp. 49, 87, 94, and Const. as adopted.

In the Convention of 1846 the prohibition was reported in the proposed Bill of Rights. Very little debate was had concerning it. The clause "nor shall witnesses be unreasonably detained," and the provision as it now stands were adopted.

N. Y. Conv. 1846 (Atlas edition), pp. 196, 1062.

THE COURTS AND TEXT-WRITERS HAVE ADOPTED THE VIEW OF THE CONSTITUTIONAL PROHIBITION ABOVE CONTENDED FOR.

Matter of Bayard, 25 Hun, 546.
Wilkerson v. Utah, 99 U. S., 130, 135, 136.
Story's Constitutional Limitations, 328, 329.
Story on Constitution, vol. 2, § 1903.

The same interpretation would seem also to be supported by the rule of construction, *noscitur a sociis.* All the safe-guards enumerated by the section of the Constitution in which the clause is found, and, in fact, by the sections immediately preceding and following, have reference to proceedings in the courts. The prohibitions against excessive bail and fines, and the unreasonable detention of witnesses can only apply to the courts of criminal jurisdiction. Such matters are, for the most part, within the discretion of the courts, and were more fully within such discretion at the time the present Constitution was adopted.

EVEN IF THE LANGUAGE OF THE FIFTH SUBDIVISION OF SECTION 1 OF ARTICLE 1 OF THE STATE CONSTITUTION SHOULD BE CONSTRUED AS APPLICABLE TO THE LEGISLATIVE POWER, IT IS TO BE REGARDED ONLY AS A MAXIM, THE INTERPRETATION OF WHICH RESTS WITH THE LEGISLATURE ALONE.

The definition of offenses and rules of punishment is wholly a matter of policy and legislation. The Legislature has discretion as well as the courts. No maxim of government is better established than that which prohibits one branch to encroach upon the province and functions of another.

Matter of Bayard, *supra.*
Commonwealth v. Hitchings, 5 Gray, 482, 486.

An analogous case of legislative discretion which the courts may not review is presented by that provision, both of the Federal and State Constitutions, which authorizes the Legislature to suspend the writ of *habeas corpus* when, in cases of rebellion and invasion, the public safety may require it.

Judge Story, speaking of this provision, says (Story Const., § 1342): "It would seem, as the power is given to Congress to suspend the writ of *habeas corpus* in cases of rebellion or invasion, that the right to judge whether exigency had arisen must exclusively belong to that body."

See, also, Martin v. Mott, 12 Wheat., 19.

The definitions of crimes and penalties undoubtedly falls within the scope of the police power.

Tiedeman on Police Power, §§ 10–12.

If the legislation be clearly an exercise of the police power, the courts cannot inquire into its wisdom or policy. To do so would be an interference with powers committed to another branch of government.

Powell v. Pennsylvania, 127 U. S., 686.
People v. Arensberg, 103 N. Y., 399.
People v. Gillson, 109 N. Y., 389.

The history of the provision as it appears in the Bill of Rights and the Constitution, and the practical construction given to it for a century after its original enactment, also warrant us in citing the maxim *contemporanea expositio est fortissima in lege.*

A striking analogy is presented by the historic meaning of the term "due process of law."

Magna Charta declared that no person should be deprived of life or property, save by the law of the land or the judgment of his peers. Our own Constitutions are specific in the statement that "no person shall be deprived of life, liberty or property, without due process of law."

"Due process of law," generally speaking, cannot mean less than a prosecution or suit instituted and conducted according to the prescribed forms and solemnities for ascertaining guilt, or determining the title to property. It means a trial had according to the course of the common law, and not by mere legislation.

Embury v. Connor, 3 N. Y., 511, 517.
Taylor v. Porter, 4 Hill, 140.
Campbell v. Evans, 45 N. Y., 356.

Nevertheless, it is universally admitted that the Legislature may, by taxation and the exercise of the police power, deprive persons of property without giving them the benefit of an orderly proceeding, in a judicial manner, or in a judicial tribunal.

These exceptions arise and are respected because prior to the adoption of the Constitution it had become firmly settled that the exercise of certain governmental functions, such as the power of taxation and the police power, must, of necessity, proceed without the formalities which are indispensable to the proceedings of courts.

Judge Porter said, in Rockwell v. Nearing (35 N. Y., 302–308): "There are many examples of summary proceedings which were recognized as due process of law at the date of the Constitution, and to these the prohibition has no applcation."

Mr. Chief Judge Ruger, in pronouncing the opinion of the court in Matter of McMahon (102 N. Y., 176, 187), quotes with approval the following language of Judge Denio, in Matter of Public Schools (31 N. Y., 574, 584): "In executing the taxing power the Legislature provides such agencies and safeguards against surprise, mistake or injustice as is thought expedient. It is manifestly proper that the taxpayers should have notice of the imposition proposed to be laid upon them and given an opportunity to make suggestions and explanations to the proper administrative board or officer. And this is generally secured in all well-considered systems of taxation, but it is for the Legislature to prescribe in every case what shall be sufficient; and there is not, that I am aware of, any constitutional provision bearing upon the subject."

Following the analogy of these principles and decisions, we respectfully insist that, inasmuch as it was fully settled by historic interpretation at the time of the adoption of the Constitutions, that the prohibition against cruel and unusual punishments was only intended as a restraint upon the discretionary power of courts, as conclusively appears from the facts recited heretofore in the brief, that interpretation cannot now be departed from.

There would seem to be little doubt, moreover, when we consider the utterances of contemporaneous statesmen and lawyers, that at the time the prohibition was incorporated into the Constitution of 1846 it was regarded as an unnecessary statement, for the reason that, owing to the development of statutory criminal law, the discretion of the courts had become precisely limited, as regards the imposition of punishments.

(B.)

EVEN IF THE PROHIBITION WERE TO BE CONSTRUED AS A LIMITATION UPON THE LEGISLATIVE POWER, IN THE ABSTRACT, IT MUST BE HELD HERE THAT THE STATUTE OF 1888 DOES NOT OFFEND IT; BECAUSE

(1.) EVERY INTENDMENT IS IN FAVOR OF THE CONSTITUTIONALITY OF THE STATUTE.

(2.) IT IS NOT UNCONSTITUTIONAL UPON ITS FACE.

(3.) PROOF ALIUNDE UNDER THE WRIT, TO ESTABLISH THE UNCONSTITUTIONALITY OF THE STATUTE IS ENTIRELY INCOMPETENT.

(1.) *Every presumption is in favor of the validity of legislative acts, and they are to be upheld unless there is a substantial departure from the organic law.*

Metropolitan Board of Excise v. Barrie, 34 N. Y., 666, 668.
The People ex rel. v. Briggs, 50 N. Y., 553, 558.
The People v. Home Insurance Co., 92 N. Y., 328, 344.
Newell v. People, 7 N. Y., 9.
The People ex rel. v. Albertson, 55 N. Y., 50, 54.
Matter of Elevated Railroad Co., 70 N. Y., 327, 342.
People v. Gillson, 109 N. Y., 389, 397.
People v. King, 110 N. Y., 418.
People ex rel. Kemp v. D'Oench, 111 N. Y., 359.
People v. Budd (Elevator Case), not reported.

As was said by Mr. Justice Washington in Ogden v. Saunders (12 Wheat., 270): "It is but a decent respect due to the wisdom, the integrity and the patriotism of the legislative body by which any law is passed, to presume in favor of its validity, until its violation of the Constitution is proved beyond all reasonable doubt."

(2.) *The statute is constitutional upon its face.*

"The courts will, in construing a statute, recur to the history of the times when it was passed, in order to ascertain the reason as well as the meaning of particular provisions in it.

"The occasion of the enactment of a law may always be referred to in interpreting and giving effect to it. The courts will place themselves in the situation of the Legislature and ascertain the necessity and probable object of the statute, and then give such construction to the language used as to carry any intention of the Legislature into effect, so far as it can be ascertained from the terms of the statute itself."

People v. Supervisors, 43 N. Y., 130.
See, also, Hudson Iron Co. v. Alger, 54 N. Y., 175.
People v. N. Y. & M. B. R. R. Co., 84 N. Y., 568.
U. S. v. U. P. R. R. Co., 91 U. S., 79.
Platt v. U. P. R. R. Co., 99 U. S., 59.

On the 13th day of May, 1886, was passed chapter 352 of the laws of that year, entitled, "An act to authorize the appointment of a commission to investigate and report to the legislature the most humane and approved method of carrying into effect the sentence of death in capital cases."

Section 1 of said act is as follows: "Elbridge T. Gerry, of New York, Dr. A. P. Southwick, of Buffalo, and Matthew Hale, of Albany, are hereby appointed a commission to investigate and report to the Legislature of the State of New York, on or before the fourth Tuesday of January, eighteen hundred and eighty-seven, the most humane and practical method known to modern science of carrying into effect the sentence of death in capital cases."

This statute was extended by chapter 7 of the Laws of 1887.

In January, 1888, the commission named by the act of 1886 made a report to the Legislature. A copy of such report is in evidence. (Fol. 1587.) On page 91 of such report will be found the draft of a bill recommended by such commission, and which was afterwards enacted by the Legislature, and is the statute whose constitutionality is attacked by the relator herein.

It is a matter of common knowledge that, with advancing civilization, the protest against the use of the gallows as a means of capital punishment has grown stronger and more and more emphatic. The hideous associations of the gibbet, the frightful sufferings that malefactors have endured not only in past centuries but also within recent years, at the hands of brutal and inefficient executioners; the undeniable fact that death by hanging is not instantaneous, have given force to the conviction in the minds of educated humanitarians, that the gallows is, indeed, a relic of barbarism. For many years much thought has been devoted to the devising a substitute therefor.

Electricity has for years, as the result of scientific investigation and observation of its effects, been known to be one of the most swift and certain of the agencies of death. While it may never be known what electricity is, its qualities are understood and its general laws formulated. The effect of its current upon human life is not doubtful in common experience. Swifter than thought, far swifter than sensation — so instantaneous in effect as to sweep life from the heart and brain and obliterate nerve power before pain can arise — its use as a means of capital punishment has been demanded by the humanitarian spirit of the age.

The statute in question was enacted in obedience to that demand.

So far, therefore, as the form of the statute and its undoubted intent are considered, the enactment was one prompted by mercy to prevent cruelty.

That the *infliction* of the death penalty by electricity is unusual, of course, is admitted. The constitutional prohibition, however, is against cruel *and* unusual punishments. Therefore, a novel method of punishment, if not cruel, would not offend the prohibition.

Under the presumptions of validity and propriety of motive which attach to all statutes, it must be held that the Legislature believed that the new punishment was more merciful than the old. Before that presumption can be overruled, the court must have judicial knowledge that the opinion of the Legislature was wrong. The court has not and cannot have any such knowledge.

The court in Rumsey v. The People (19 N. Y., 49) adopt, among others, the following rules: "Second. That it is to be presumed that the Legislature obtained and acted upon sufficient evidence; third, that there is no power in our judicial tribunals to review the conclusion of that body upon a question of fact; and, fourth, if such interference of the judicial with the legislative department had been warranted, a statute should not be annulled upon mere presumption."

(3.) *Proof aliunde to establish the unconstitutionality of a statute is entirely incompetent.*

There is not, and never was, any authority or precedent warranting such a proceeding under a writ of *habeas corpus*.

If the court or judge can go into the question as to the propriety of the sentence imposed upon Kemmler at all, that question can only be considered as one of law.

The proposition that a statement of what the law is claimed to be contained in a pleading, even though it be absolutely incorrect, need not be denied or controverted or traversed by the pleading on the other side, is so perfectly simple and elementary that no citation of authority is needed to sustain it.

The provisions of the Code of Civil Procedure, defining what proceedings shall be had on return to a writ of *habeas corpus*, are found in sections 2031 to 2039.

It is immediately obvious, on an inspection of such sections, that all that the agent and warden was called upon to state in his return to the writ here was, that the relator was held by him by virtue of the final judgment and warrant of the Oyer and Terminer ; and, moreover, all that the relator can deny effectually of that return is a material allegation of fact — if, indeed, there be any such traversable allegation in the warden's return ; and the only statement of fact that a relator can allege affirmatively in controverting the return is one that goes to impeach such return.

Where objection was made, that an ordinance which forbid slaughtering cattle within certain limits of the city of Albany was void, because it punished the prohibited acts "without pretense or any form of proof that they were injurious to the well being of the town, or that prudence required its passage," this court, in Cronin v. The People (82 N. Y., 323), Finch, J., writing the opinion, said: "The answer is that neither in the ordinance, nor in the indictment founded upon it, is it necessary to allege or explain the reasons for its enactment or the inquiry out of which it grew. It is of the nature of legislative bodies to judge for themselves, and the fact and the exercise of that judgment is to be implied from the law itself."

THE COURTS CANNOT TAKE PROOF ALIUNDE FOR THE PURPOSE OF ASCERTAINING WHETHER A STATUTE, VALID AND REGULAR ON ITS FACE, IS UNCONSTITUTIONAL. THEY CANNOT GO BEHIND THE STATUTE ITSELF.

Matter of Elevated R. R. Co., 70 N. Y., 327, 328, 351.
People v. Albertson, 55 N. Y., 50.
People v. Draper, 15 N. Y., 532, 545, 555.
Talbot v. Hudson, 16 Gray (Mass.), 417, 422.
Warner v. Beers, 23 Wend., 125.
People v. Devlin, 33 N. Y., 280.
Judson v. Plattsburg, 3 Dill., 181.

THE BURDEN IS ON THE RELATOR.

The relator cannot shift from his shoulders the burden of establishing that his sentence is unconstitutional.

It is unnecessary to multiply citations in support of the proposition that every intendment is in favor of the constitutionality of statutes, and of the wisdom of the enactments of the Legislature.

The cases cited (*supra*) are positive and unmistakable in declaring that the courts cannot take proof *aliunde* for the purpose of ascertaining whether a statute, valid and regular on its face, is unconstitutional in fact.

The counsel for the relator, as this case has proceeded, seems to have become convinced of the correctness of our position in this regard. He has, therefore, been obliged to shift his position.

It appears from the record (fols. 4166, 4168) that, on the return of the writ herein, the defendant's attorney offered to prove that the infliction of the penalty named in the sentence, that is to say, the passing of an electrical current through the body of the said Kemmler is a cruel and unusual punishment within the meaning of the Constitution, and it cannot, therefore, be lawfully inflicted, and to establish the facts upon which the court can pass as to the character of the penalty.

The Attorney-General objected to the taking of the testimony as to the constitutionality of the law, on the ground that the court has no authority to take such proof. The objection was overruled. The Attorney-General excepted, and a referee was appointed for the purpose of taking such testimony.

The relator now asserts that the testimony was taken, not for the purpose of establishing the unconstitutionality of the statute *aliunde*, but for the purpose of enabling the court to say what the statute meant. His change of front will avail him little.

We insist that the meaning of the statute is perfectly clear. The rule applicable to the present case was laid down by the chancellor in Jackson v. Boyd (17 Johns., 475), and followed by Marvin, J., in People v. New York Central Railroad Company (13 N. Y., 78). "It is not permitted to interpret what has no need of interpretation. When an act is conceived in clear and precise terms — when the sense is manifest and leads to nothing absurd — there can be no reason to refuse the sense which naturally presents. To go elsewhere in search of the meaning, in order to restrain or extinguish it, is to endeavor to elude it. If this dangerous method be once admitted, there will be no act which it will not render useless."

The current of authority at the present day is in favor of reading the statutes according to the most natural and obvious import of the language, without resorting to subtle and forced construction for the purpose of either limiting or extending their operations.

Waller v. Hains, 20 Wend., 555, 562.

The words of a statute, if of common use, are to be taken in their natural, obvious and ordinary significance; and it is an established rule in giving construction to a statute, first to ascertain its intent. This may be determined from the language of the whole and every part of the statute, as well as from the necessity or occasion of making the statute. When ascertained it should be followed with reason and discretion.

Holmes v. Carley, 31 N. Y., 289.

While it is the duty of courts, in construing statutes, to give effect to the intent of the law-making power and to seek for that intent in every legitimate way, yet it is to be sought, first of all, in the language employed, and if the words are free from ambiguity and express clearly the sense of the framers of the instrument, there is no occasion to resort to other means of interpretation.

McClusky v. Cromwell, 11 N. Y., 593, 601.

In previous arguments on the questions involved in this proceeding the relator's counsel has attacked the policy of the legislation in question upon the ground, as alleged, that it was a "prostitution of a noble science." He now feels bound to venture the astonishing assertion that there is no such thing as a science of electricity; that the laws of electricity, if any such there are, have not yet been ascertained, and that, therefore, the language of the statute, "the punishment of death must in every case be inflicted by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death," has no ascertainable meaning.

If this assertion were true, the testimony bearing upon the interpretation of the statute would, *a fortiori*, be entirely incompetent.

If a statute means nothing, that fact is, of course, apparent upon the face of the statute. If it has a meaning, that meaning must be determined by the court from the statute itself, and it would be a manifest absurdity to ask the privilege of establishing, by proof, that a statute which has a meaning obvious to the court is, in fact, meaningless.

II.

THEREFORE, THE ONLY QUESTION THAT CAN BE GONE INTO ON THE RETURN OF THE WRIT IS AS TO THE JURISDICTION OF THE COURT THAT PRONOUNCED THE JUDGMENT.

People ex rel. Fry v. Warden, 100 N. Y., 20.

People ex rel. Tweed v. Liscombe, 60 N. Y., 559.

People v. McLeod, 1 Hill, 377; 3 Hill, 658.

People ex rel. Hackley v. Kelly, 24 N. Y., 74.

III.

BUT CONCEDING, FOR THE PURPOSES OF THE ARGUMENT, THAT THE TESTIMONY TAKEN BEFORE THE REFEREE WAS COMPETENT ON THE QUESTION OF CONSTITUTIONALITY, THE RELATOR HAS UTTERLY FAILED IN HIS CONTENTION.

THE EVIDENCE, SO FAR FROM INDICATING THAT THE INFLICTION OF THE PENALTY OF DEATH BY THE APPLICATION OF THE ELECTRIC CURRENT WOULD BE A CRUEL PUNISHMENT, DEMONSTRATES AFFIRMATIVELY THAT SUCH METHOD OF INFLICTING THE DEATH PENALTY WILL BE CERTAIN, INSTANTANEOUS AND PAINLESS.

BOTH THE COUNTY JUDGE AND THE GENERAL TERM HAVE SO HELD. (Fol. 4297.)

As we have already shown, and, indeed, as must be conceded without argument, every intendment is in favor of the constitutionality and wisdom of the legislation in question. The burden — if the question of fact is to be gone into — is upon the relator to overthrow the presumption of propriety and constitutionality by positive testimony. This he has failed to do. He has contented himself with attempting to make out a case of doubt or divided opinion. Such a case is utterly immaterial. However much one man or even many men may doubt the practicability of the proposed method of execution has nothing whatever to do with the question, insomuch as the Legislature has thought otherwise, and has made a direct and positive declaration of its opinion in the form of law.

Confident that the court, if it feels warranted in opening the testimony at all, will examine it in a spirit at once broad and scientific, we shall content ourselves with brief references to such testimony, certain salient points thereof, merely to sustain the proposition standing at the head of this branch of our argument.

RESISTANCE TO THE ELECTRICAL CURRENT.

A very great deal of testimony has been taken in the case bearing upon the subject of human resistance to the electrical current. The term *resistance*, as used when we speak of electricity, is, perhaps, equivalent to the expression "penetrability of matter by electricity." The term "conductivity" is the correlative of "resistance;" that is to say, the resistance of a body is inversely proportionate to its conductivity.

The resistance of objects or conductors to the electrical current is measured by what is known as the Wheatstone bridge. (Fol. 58.)

It is regarded as an instrument absolutely reliable for such measurements. (Edison, fol. 2490.)

This instrument is conceded by all the scientific men who testified in the case to be an absolutely reliable means of measuring the resistance of a body to the electrical current. (Fols. 157, 158, 439, 1213.)

The pressure, weight or electro-motive force of an electrical current is measured by the unit volt, which is an electro-motive force equivalent to one cell of Daniels' galvanic battery. (Fol. 154.)

The ampere is the unit of the quantity or intensity of the current. (Fol. 155.) An ohm is the unit of electrical resistance. (Fol. 153.)

The intensity of the current depends upon two factors: The electro-motive force and the resistance of the object or conductor to such electro-motive force.

Ohm's law is that the current in amperes equals the electro-motive force in volts divided by the resistance in ohms. (Fol. 155.)

The ascertainment of the efficient energy of the current is obtained by multiplying the electro-motive force in volts by the current expressed in amperes, which gives the result in watts. A watt is one seven hundred and forty-sixth of a horse power. (Fol. 349.)

Making use of an analogy, water flowing through a pipe would be the electrical current. The amperes would be the volume or amount of water flowing in the pipe. The volts would be the pressure or speed of the water flowing through the pipe. (Fol. 354.)

The relator's counsel strenuously endeavored to establish, as a fact in the case, that the resistance of different men differs largely. This attempt was an absolute failure. The People's Exhibits, B, C and D, are the tabulated results of experimental tests of the resistance, measured by the Wheatstone bridge, of upwards of 500 men. They were made by the trusted and skilled employes of Mr. Thomas A. Edison, and we have no hesitation whatever in saying that they are in every respect the most conclusive and scientific observations upon that subject which have ever been recorded and published to the world. (See Mr. Edison's testimony as to the methods employed of making the tests, fols. 2492–2495.)

Certain of the relator's witnesses testified to experiments, either made by themselves or found stated in books, which it was claimed showed that the resistance of different persons vary very largely. But such apparent differences, as appears from the undisputed testimony in the case, were occasioned by the use of improper electrodes, and indicate not the resistance of the individual, but the resistance of *the contacts.* (See fols. 477, 505, 1078, 1079, 1081, 1690, 1716, 1719, 1722, 2282, 2284, 2285, 2291, 2492–2495, 2635, 3607.)

The testimony of all the scientific men summoned by both sides, who were examined upon the subject, is unanimous to the effect that the resistance indicated by tests depends very largely upon the kind and size of the electrodes and the character of the contact.

Mr. Kennelly, Mr. Edison's chief electrician, gave some very interesting testimony upon this point (fols. 2636, 2654), showing that results indicating large resistance were caused by improper form of electrodes and bad contacts.

It can hardly be doubted, after a careful examination of the testimony, that the average resistance in the human body to the electrical current is about 1,000 ohms. From that point it ranges downward and upward between the limits of 400 and 1,800 ohms. (Fols. 1719, 2284.)

THE DEGREE OF ELECTRICAL ENERGY REQUIRED TO PRODUCE DEATH.

Mr. Harold P. Brown, an electrical engineer, was the first witness summoned by the relator's counsel. Relator's Exhibit A (see Appendix), is a book published by Mr. Brown, in which are set forth the results of a very large number of experiments with electrical currents made by him upon animals.

Electrical currents are of two general kinds, alternating and continuous. The continuous current flows steadily in one direction like a stream of water in a descending pipe. An alternating current is one that reverses its direction continually with great rapidity. (Fols. 594, 2487.)

Mr. Pope, an expert in the employ of the Westinghouse Company, which manufactures a dynamo producing the alternating current, was a witness summoned on the part of the relator, and testified that the continuous current is probably less dangerous than the alternating one. (Fol. 593.)

The experiments of Mr. Brown upon animals indicate very conclusively that Mr. Pope's opinion in this respect was entirely correct.

Arthur Edward Kennelly also testified as to experiments made by him upon a large number of animals to determine the effect of the electrical current. (Fols. 2662–2726.)

Dr. George C. Fell also testified as to the effect of the application of the electrical current when applied to dogs — the result of his experiments. (Fols. 3883, 3901.)

Dr. Frederick Peterson assisted Mr. Brown in his experiments upon animals, and describes the same. (Fols. 959, 969.)

These experiments with the electrical current, as applied to animals, are absolute demonstrations of the destructive power of the agency upon animal life when applied in a proper manner. They were in part tentative — for the purpose of ascertaining the smallest amount of electrical energy that was required to kill the animal. (Fol. 1014.) It was not intended, by any means, that each experiment should be instantly fatal. Where the current was applied, however, for the purpose of producing instantaneous death, that result was achieved.

Joseph Ocker, a witness in behalf of the People, testified as to the death of a man by the name of Murray from contact with electric light wires at No. 616 Broadway, New York city, April, 1888. (Fol. 3350.)

Bernard J. Hughes, a witness in behalf of the People, testified as to the death of George Schnitzer from contact with electric lamp at 244 East One Hundred and Twenty-second street, New York city, September, 1887. (Fol. 3362.)

Lena Cohen, a witness in behalf of the People, testified as to and described the death of Fred Witte, at 200 Bowery, New York city, April, 1888, by coming in contact with an electric lamp. (Fol. 3642.)

Philip Fogarty (fol. 3764), and Wallace Harrington (fol. 3768), testified as to the death of a man by the name of Smith, in Buffalo, from coming in contact with the brushes of a dynamo.

Death in each of these cases was absolutely instantaneous.

The deaths above mentioned are a few instances of the many that have been recorded by the public press as resulting from contact with electric lighting currents.

Mr. Harold P. Brown, summoned as we have already said by the relator, testified that he had a list of ninety-one persons who had been killed in this country by electricity. (Fol. 88.)

Dr. Peterson testified, as the results of his observations in vivisection, that the vitality of animals is fully as great as that of men, and that they can endure more pain than men. (Fol. 969.)

OPINION OF EMINENT EXPERTS AS TO THE EFFICACY OF THE ELECTRICAL CURRENT FOR THE PURPOSE OF THE EXECUTION OF CRIMINALS.

The following eminent scientific men, summoned in behalf of the People, testified that in their opinion an electrical current could be produced by artificial means and so applied to the human body as to produce death in every case instantly and painlessly.

Dr. Frederick Peterson, graduate of Buffalo University, student at universities at Vienna, Strasburg, Leipsic, Paris and London, practitioner for ten years and specialist in the use of electricity as a medical agency. (Fols. 972–974.)

Alphonso D. Rockwell, physician of twenty-five years' experience, professor in the New York Post Graduate Medical School and Hospital; author of a standard treatise on the subject of medical electricity. (Fol. 2313.)

Thomas A. Edison. (Fol. 2511.)

Dr. Cyrus Edson, physician-in-chief of the Health Department of New York and president of the New York Board of Pharmacy. (Fol. 3015.)

Dr. George C. Fell, of Buffalo. (Fol. 3906.)

Arthur Edward Kennelly, chief electrician in the laboratory of Thomas A. Edison. (Fol. 2726.)

Dr. Alfred Loomis, the leading expert medical witness of the relator, testified that he did not know whether a current of electricity could be generated that would be certain to kill a human being. On cross-examination he testified that the application of electricity in medical practice was not a matter of special attention to him, by any means, although he occasionally administered it.

Dr. Loomis further testified, on cross-examination, that Dr. Rockwell, one of the People's expert medical witnesses, was probably more completely a specialist in the use of electricity than any other person in the city of New York. (Fol. 2092.)

None of the experts, medical or otherwise, who were summoned by the relator, testified that, in their opinion, an electrical current applied for the purpose of producing death, would fail in any case; they simply contented themselves with an expression of doubt as to whether it would produce death in all cases.

The only reason that they had to give for their doubt upon the question was the assumption suggested by them, wholly a matter of opinion, that different persons are differently susceptible to the effects of the electrical current, and that the resistance differs very greatly in different person. We have already seen that careful experiments conducted under the direction of Mr. Edison have demonstrated that there is no such great difference in the resistance offered in different persons as was assumed to exist by the medical gentlemen who were summoned on the part of the relator.

To sustain the theory that the susceptibility to the effects of the electrical current differs in different individuals, and that the same current which, in certain cases has produced death, will not bring about that result when applied to all men, the relator's counsel put upon the stand a number of persons who testified that they had received "the full force of the dynamo" on various occasions. These persons were cross-examined with great particularity for the purpose of getting their statements as to the precise circumstances under which they received the shocks testified to; and the application of laws governing the electrical current will indicate that it was impossible that these individuals should have received more than a part, and in many cases a small part, of the electrical current generated by the dynamo.

It is not proposed here to go into an analysis of these cases. We will, however, state the laws which may be applied to demonstrate the futility of relator's claim as to the weight to be given to the testimony of these persons.

An ordinary electric light wire, such as is used in connection with arc light and dynamos, has a resistance of only four or five ohms to the mile. (Fol. 3090.)

The rule of transmission of electric currents in case there are two paths offered to it is, that the current divides and quantity of current passes inversely as to the resistance offered by the respective conductors. (Fols. 2736, 3088, Edison, 2501.)

When, therefore, a man takes hold of the brushes of a dynamo, as was testified in the case of Stevens (beginning at fol. 1772), his body offers a resistance to the passage of the current of at least 1,000 ohms, or, in other words, a resistance very much greater than the entire circuit connected with the dynamo. Therefore, the current which would pass through his body must be very much less than the current which passes over the wires; so that it is impossible that he should receive any more than a small portion of the entire current generated by the dynamo. The dynamo which this man Stevens touched was a continuous current dynamo. (Fol. 1848.)

One T. Carpenter Smith also testified to having received the full force of a dynamo on numerous occasions. The application of the electrical laws above stated to the cases mentioned by him, leads to a perfect demonstration of the fact that it was impossible for more than a portion of the current to have passed through the body of himself and the other persons whom he mentions.

The same rule applies to every case of electrical accident where death did not ensue, that was testified to by the relator's witnesses.

Great reliance seems to have been placed by the relator's counsel upon the fact testified to by one of their witnesses, that a dog fell against an electric light conductor, was severely burned, remained insensible for a long time after the accident and then recovered.

Schuyler S. Wheeler, expert of the New York Board of Electrical Control, a witness called on behalf of the People, analyzes the case of the dog and demonstrated that it was impossible for him to have received more than a portion of the current passing over the wire. (Fols. 3109–15.)

William B. McQuesten, a witness called by the People, a man of great electrical knowledge and experience, analyzes at length the various cases of accidental shocks testified to by relator's witnesses, and showed from the state of facts detailed by them that it was impossible in each case that more than a portion of the current passed through the body of the persons receiving the shocks. (Fols. 3477–3482.)

As we have already seen, imperfectness of contact with the electrical conductor increases the resistance, and the amount of current received, of course, is inversely proportionate to the resistance. Where there is perfect contact with an electrical conductor no burning effect is produced. Therefore, a burn in the case of electrical accident indicates poor contact. (Fols. 376; Edison, 2502; Wheeler, 3093; McQuesten, 3426; Kennelly, 2656.)

In every case of accidental shock testified to by the relator's witnesses the injury was accompanied by severe burning, indicating a contact of very high resistance and a correspondingly small transmission of current.

The relator's counsel seem to rely strongly also upon the evidence of witnesses summoned by them as to lightning shocks that had not proved fatal, assuming that a discharge of lightning must necessarily indicate a high degree of electrical energy, This was an entirely erroneous assumption. Lightning is electricity at an enormously high pressure, without great quantity, high voltage with small amperage. (Fols. 3130–3132.)

Inasmuch as we have already seen the electrical energy is indicated by the product of voltage and amperage, it is entirely probable, and in most cases possible, that a discharge of lightning may indicate a very small degree of electrical energy.

Further, as Mr. Pope, the leading electrical expert of the relator, himself testified, in cases of lightning discharge, the flash is only the axis of the discharge, while the actual discharge of electricity may be disseminated over a vast region. (Fol. 518.)

Also that the passage of the lightning flash produces a contrary current from the earth to the clouds. (Fol. 519.)

And that persons who have received discharges of electricity accompanying lightning, from which they have recovered, in many cases undoubtedly received only the induced current or a filament of the discharge. (To same effect see testimony of Wheeler, fol. 3135, 3140.)

Very remarkable effects of lightning discharges were testified to by certain of the relator's witnesses. (See testimony of Adams, fol. 3299; Kerwin, 1751; Alfred West, 1862.)

In every one of these cases indications were clear that the persons suffering received only a filament of the discharge. Other objects in their vicinity were struck with the main bolt.

In the case of Adams, the house in which he sat was wrecked, two persons in the room with him were killed and numerous trees around the house were destroyed. Moreover, the testimony of these witnesses indicates that the lightning current did not penetrate their bodies, but passed around them, between the clothing and the body.

CRUELTY.

Among the hypothetical theories advanced by the relator's counsel was one to the effect that burning would be produced by the application of the current to the criminal. It is not denied that the effect of an electrical current passing through an object or conductor is to raise the temperature of such object; in other words, electrical energy is transmitted into heat. The law governing such transmutation of electrical energy into heat is perfectly well settled in electrical science, and is known as Joule's law. We have already seen that burning at the point of contact indicates a bad contact of the electrode. Testimony of the People's witnesses upon this point is unanimous to the effect that electrodes could be so arranged for criminal execution as absolutely to prevent any possibility of burning, even in case death was not instantaneous. (Fols. 225, 378; Peterson, 974; Dr. Rockwell, 2275; Kennelly, 2660.)

Mr. Pope, chief electrical expert on the part of the relator, himself conceded that it would be possible to make electrodes to be applied to the head of a person intended for execution that would produce a close contact with the head, and offer only an average resistance of the body, and that in such case the heat developed by the current would be uniform throughout the entire body. (Fols. 515, 527.)

Under the direction of Mr. Edison, Mr. Kennelly made an experiment for the purpose of determining the heating effects of a current of 1,300 volts through a column of weak solution of zinc sulphate, five feet in length and two inches in diameter, offering a resistance of 1,100 ohms; The rise of temperature was at the rate of eight degrees centigrade per minute only, or fourteen degrees Fahrenheit, thereby demonstrating that a period of eight or ten minutes would be required to raise the water to a boiling point. (Fol. 2966.)

Convinced that there was no practical difficulty in the way of so arranging the electrodes that no burning effect would be produced at the point of contact, relator's counsel then evolved the theory that the current produced a chemical effect analogous to burning, which would be attended with severe pain.

This theory was completely overthrown by the testimony of Rudolph A. Witthaus, chemist of the University of the City of New York. His statement will be found at folios 3067–3074. It is so conclusive that the relator's counselseems to have been convinced, as he made no attempt at cross-examination.

THE MEANS OF DEVELOPING ELECTRICITY TO BE USED BY THE STATE FOR CRIMINAL EXECUTIONS.

Relator's counsel seems to have conducted this investigation on this theory, that the State was bound to make use of the dynamos furnished by Mr. Harold P. Brown. These are Westinghouse dynamos, producing on an average 1,050 volts. As a matter of fact, the State has never accepted the dynamo at the Auburn prison. (Fol. 4030.)

And, as Mr. Durston, the agent at Auburn, testifies: "It is expected to use such a system of dynamos for "the application of electricity as shall be determined "to be the best. That is a matter still open." (Fol. 4043.)

It would be, indeed, absurd to suppose that the State will not make use of the very best possible appliances for the purpose.

Mr. Pope, who was a very candid man, notwithstanding his personal and business interests, testified, at folio 501, that he thought it possible to produce death without pain with the alternating current, although he was not certain of it.

Dr. Bernard Sachs, another of the relator's witnesses, a physician and professor, testified that he thought it would be possible, by artificial means, to produce a current of electricity that would cause death in every instance to human beings; but that he did not know of any current thus far generated that would do it. (Fol. 1699.)

Dr. Sachs did not pretend to be an electrical expert generally, and it is undoubtedly true that his knowledge as to what kind of currents have been or may be produced is very meagre. He conceded, however, that a dynamo producing 10,000 volts could readily be manufactured. (Fol. 1728.)

Mr. Edison testified that there are dynamos in England producing 10,000 volts. (Fol. 2599.)

Also, that there would be no trouble in harnessing together two Westinghouse machines tandem, for the purpose of producing an increased current. (Fol. 2600.)

Mr. Kennelly testified that a voltage of 4,000 could be artificially produced with one dynamo. (Fols. 2729, 2730.)

Assuming, then, that the State should procure a dynamo producing 10,000 volts, and that a criminal to be executed offers a resistance of 2,000 ohms, the intensity of the current which the criminal in that case would receive would be indicated by five amperes, by applying Ohm's law above stated. The electrical energy produced would be equivalent to about sixty-five horse power. Has any sane person any doubt that such a power as that applied to a human body would produce instantaneous death?

Mr. Edison testifies that a current of one-tenth of an ampere would be sufficient to kill in all cases. Fol. 2580.)

Dr. Peterson would use a current of the intensity of one ampere in order to be entirely safe, although he thinks 1,500 volts would produce death in every case. (Fol. 1039.)

As we have already seen that the real resistance of men, when properly tested, does not run higher than 1,800 or 2,000 volts, a dynamo producing with a pressure 2,000 volts would, when used upon any subject, produce a current having an intensity of at least one ampere.

There is no difficulty whatever that prevents the taking of the resistance of the subject before the application of the fatal current. (Fol. 59.)

We say, therefore, in leaving this branch of the subject, that the State has never adopted the proposed method of application of the current which is illustrated by the diagram drawn by Mr. Harold P. Brown at the request of Mr. Cockran, which is inserted as an exhibit in the case. (Fol. 3502; see appendix.) That it is to be presumed that the authorities charged with the responsibility of criminal executions will use the very best appliances that science is able to produce; and that if it be true, which we do not concede, that the Westinghouse dynamo which Mr. Brown offers to the State cannot produce a sufficient voltage of current to relieve the mind of any unprejudiced scientific person of doubt as to the effect before the test is made, such appliances will be obtained as will place the matter within the domain of absolute certainty.

All the competent witnesses seem to agree that it was possible to raise the amount of voltage of the Westinghouse dynamo in two ways; by increasing the speed of the armature and also by increasing the exciting force of the subsidiary or exciting dynamo. (Pope, fols. 510–512; Kennelly, fol. 2965.)

They disagree, however, as to whether it would be safe, mechanically speaking, to so increase the speed of the armature. The State will not run any risks in that matter.

AS TO THE PHYSICAL EFFECT OF THE LETHAL CURRENT ON THE BODY TO WHICH IT IS APPLIED.

Dr. Frederick Peterson testifies, as the result of examinations made upon animals killed by the electrical current, that he found an unusual fluidity of the blood and dark color and breaking down of the capillary vessels. (Fols. 1009, 1010.)

Dr. Alphonso D. Rockwell testified that the alternating current is the most destructive (fol. 2319); that the lethal current would produce ruptures of the tender tissues in the interior of the body, would immediately stop the action of the heart and respiration, and produce paralysis of the nerve centers. (Fol. 2323.)

To same effect is the testimony of Dr. George C. Fell. (Fol. 3901.)

Dr. Peterson testified that the velocity of nerve sensation is about ninety feet per second. (Fol. 970.)

That the velocity of the electrical current is infinitely greater. (Fol. 970.)

That the velocity of the current does not vary with varying resistances. (Fol. 971.)

Mr. Pope concedes (fol. 509) that the velocity of the electrical current is infinitely greater than that of nerve sensation.

Dr. Cyrus Edson testified that the human body is about three-fourths water. (Fol. 3018.)

Before submitting the case to the court, we believe that we are warranted in saying that the court will not feel bound to ignore facts of public notoriety bearing on the question here — the deaths that are happening in all parts of the country almost every day — the results of accidental contacts with wires carrying electric currents. When it is remembered that the electro-motive force of such currents is rarely greater than ten hundred and fifty volts, and that it is impossible, under perfectly well-defined laws of electrical conduction, that the persons thus meeting death received more than a moiety, at most, of the current, there would not seem to be much footing left for the contention that a current of the same energy, or of greater energy, applied in entirety and in a scientific manner, would not produce death, in every case, instantly and painlessly.

The deductions would seem to be entirely clear from the whole case, that the effect of the application of an alternating electrical current of high voltage would be to instantly stop all the involuntary movements of life, and to crush out all possibility of nerve sensation before the slightest impulse or indication of pain could reach the brain, and that death would be produced before any effect whatever, within the meaning of the word cruel, could be felt or even produced in the body of the criminal.

We, therefore, insist, with all confidence, that the presumption with which this question was clothed at the outset has been broadened and enforced by the testimony that has been taken at the relator's request; that the relator has not established his contention that the infliction of death by electricity would be attended with cruelty, but that the testimony has established as a perfectly reasonable deduction that such method of criminal execution is the most merciful that has yet been devised by the humanitarian ingenuity of man.

IV.

ELECTRICITY AS A SCIENCE.

We think that it may be assumed that perfectly well-established facts, matters of the every-day experience and observation of men, pertinent upon the questions involved here, will not be ignored by the court in this proceeding.

In answer to the contention of the counsel for the relator, that there is no such thing as a science of electricity, we assert the following as bearing upon this contention, in addition to what has already been said:

By the aid of a defined law of the electric current, the oceans are traversed in paths as accurately followed as are the common highways on the land.

By the use of a defined law of electricity, the telegraph and the telephone have become absolutely reliable means for the transmission of intelligence. The efficiency of the telegraph is daily being increased; messages pass to and fro over the same wire simultaneously; the system, from being at first only a single or simple one, has become duplex, quadruplex, multiplex.

By the use of such laws, a break in an Atlantic cable is located, by the operator at either end, with such accuracy that a ship may be sent to the exact spot for the purpose of remedying the defect.

By the application of electrical laws, machinery of all kinds is operated in tens of thousands of workshops, passengers are carried along railroads and vessels may be moved from port to port.

By the application of electrical laws, the fluid itself is stored up in batteries and cells with such security that it may be used for months after such storing.

By the application of electrical laws, the streets and dwellings of every city in the land are lighted. The electric light is made use of by ships in times of peace and in assistance of war, and the seaboard is lighted for the safety of the mariner.

By the application of electrical laws, a clock in Washington is connected with thousands or tens of thousands of clocks all over the country in such manner as to produce in every one of them a simultaneous indication of the passage of time, second by second.

The lives and the property of the people are protected by the application of electrical laws to systems of fire-alarms and railway signals.

The electrical current is used in a thousand provinces of business; and, finally, wherever perfect and instantaneous accuracy in mechanics is required, electricity is the agent that is universally resorted to for the purpose of obtaining that precision.

A scholarly and scientific writer has said that nearly all the triumphs of science mentioned in Macaulay's eulogium of the philosophy of Bacon may be claimed for electricity:

"It has lengthened life; it has mitigated pain; it has given new securities to the mariner; it has furnished new arms to the warrior; it has guided the thunderbolt inocuously to the earth; it has lighted up the night with the splendor of day; it has extended the range of human vision; it has multiplied the power of the human muscle; it has accelerated motion; it has annihilated distance; it has facilitated intercourse, correspondence, all friendly offices, and all dispatch of business; it has enabled man to descend to the depths of the sea, to penetrate securely into the noxious recesses of the earth; to traverse the land in cars which whirl along without horses. These are but a part of its fruits and of its first fruits. Its law is progress. A point which, yesterday, was invisible, is its goal to-day, and will be its starting post to-morrow."

All these great achievements of electrical science were rendered possible and have been attained to by virtue of the fact that certain of its laws have become absolutely defined and are as invariable as the law of gravitation. It is true we do not know what electricity itself is. Neither do we know what gravity is. We do not know what light is or what heat is. Our ignorance, however, of the inherent and basal essence of these agents is no bar whatever to our making use of such agents, through the laws relating to them which have been ascertained and defined.

Various of the laws of electricity were testified to by witnesses, both those of the relator and those summoned on the part of the People. We have already referred to certain of them. Briefly, they may be stated as follows:

First. Electricity moves in a circuit.

Second. Ohm's law. The intensity of the current in amperes is ascertained by dividing the electro-motive force, expressed in volts, by the resistance, expressed in ohms.

Third. When two paths are offered to an electric current it divides and follows both, proportionately to their respective conductivities.

Fourth. Joule's law, or the law of heat. The formula setting forth this law was given by one of the witnesses of the relator. (Folio 907.)

No witnesses summoned by either side upon the investigation before the referee questioned the existence of these laws and their absolute accuracy. They are regarded as perfectly established and are treated as unquestioned in every text-book or treatise on the subject of electricity worthy of the name. And, so far as is known to the counsel for the People, their existence and their absolute correctness has never been questioned, unless it be by the counsel for the relator. His witnesses certainly do not make such question.

There are also certain practical electrical facts which are as well established as the laws which we have above referred to. Certain of them are as follows:

Instruments have been invented and are in daily use by electricians which measure acurately the voltage or pressure of an electro-motive force, and the amperage or intensity of an electric current. (Fols. 40–43.)

Every object or substance has its own specific resistance, and, therefore, its own specific conductivity.

The resistance of any inanimate body or substance to the electric current may be measured with perfect accuracy by the Wheatstone bridge.

The resistance of the human body to the electric current, at any moment of time, may be measured by the Wheatstone bridge. The indicated results of such measurement depend very largely upon the care taken in making the test, the size of the electrodes or connections between the body and the electric circuit, the closeness of the contacts between the body and such electrodes and the condition of the skin as to cleanliness at the time the test is made.

We have already made references to the testimony which establishes the existence of these facts. Such citations were, however, quite unnecessary, as there is no dispute as to such facts, strictly speaking. The only modification of the above statements, on the part of any of the relator's witnesses, would be that, in the opinion of some, the resistance of the human body varies from time to time. That the resistance of a given person is, however, practically invariable, when the measurements are properly made, is, we insist, demonstrated by the experiments made by Mr. Edison's assistants (pp. 38, 39 of this brief; see, also, People's Exhibit C). Even if changes of resistance do take place from time to time, the fact would be of no moment, for the reason that the convict's resistance at the moment preceding the execution may be measured, and the current to be applied, graduated accordingly.

Dr. Landon Carter Gray, one of relator's witnesses, produced tables of figures bearing upon the subject of human resistance, taken from some foreign publication. We have no hesitation in saying that, when compared with the testimony of all the witnesses on this subject sworn in the case, such figures are simply preposterous. They clearly indicate that the contacts were poor and the electrodes used improper. Even Mr. Jones, another of relator's witnesses, with his tin-pan electrode, failed to secure such extreme figures. (Fols. 1199–1215.)

In his argument, the counsel seemed to lay much stress upon certain experiments as to human resistance that were made at Mr. Edison's laboratory upon Mr. Hatch and some reporters, on the occasion of a visit of inspection of such laboratory, made during the investigation herein by the referee and several of his friends.

In fact, however, as will appear from the testimony of relator's witness, Harold P. Brown (fols. 4056–4068), these alleged tests were not intended to be any tests whatever, but were merely an exhibition of the Wheatstone bridge and its method of application, for the benefit of the referee. They were made in a great hurry, without any attempt to secure scientific accuracy. The record of them is of value, however, in illustrating the fact that high figures of human resistance are always the result of improperly made tests.

The attention of the court is respectfully directed to one of the electrical laws above stated, as having an important bearing in the explanation of certain testimony presented by the relator. We now refer to the law that when two paths are offered to the electric current, it divides and follows both in portions that are respectively and directly proportionate to the conductivity of the respective paths. This law and its relations to the case have already been referred to. Further elucidation may be permitted here, especially of the facts in the case of the witness Stevens, who testified to having received a shock of 1,450 volts, continuous current from taking hold of the brushes of a dynamo.

Mr. Schuyler S. Wheeler, electrical expert of the New York City Board of Electrical Control, after testifying to the law above referred to (fol. 3088), states that the conductivity of an ordinary electric light circuit, with all its lights burning, is four times greater than the conductivity of a human body, even assuming that the human body has a good connection with the conductor of electricity with which it may come in contact.

Stevens testified that his contact with the brushes occurred in the afternoon. Presumably, therefore, not all the lights connected with the dynamo were burning, and, therefore, the resistance of the electric light circuit was unusually small. According to the facts assumed by Mr. Wheeler, all the lights burning, Stevens could not have received more than one-fifth of the voltage of the dynamo. If only a few lights were burning, the fraction of the current received by him was much smaller.

As has already been stated, other witnesses summoned by the People made similar demonstrations of the impossibility of the relator's theory as to Stevens and other witnesses who testified to receiving "the full force of the dynamo." The case may be searched through in vain to find a single scrap of evidence or testimony of any kind attacking, weakening, or even questioning the correctness of the conclusions of Wheeler and McQuesten on these cases.

The law of the division of the current proportionately to the conductivities of two conductors offered to it is perfectly simple and in strict accordance with the laws governing other natural agencies that are modes of motion. Water also follows the same law, as is perfectly well known. In fact, there is a striking resemblance between the movement of water and that of electricity. Thus the larger the cross-section of water conductor, the greater and directly proportionately greater is the quantity of water that will flow. The same law holds as to electricity. (Fols. 3091, 3092.)

It seems to us that there is no need to further discuss laws which are not only perfectly well established in science, but also obviously existent. Before leaving this subject, however, we wish to declare that if the testimony with which the case abounds, as to these laws, be only once read through in a scientific spirit, it will at once be suggested to the thoughtful, judicial mind that the manifestations of electric power which, to the superficial observer seems erratic and lawless, are in every case absolutely the results of and in acccordance with strict and unvarying and defined law — law as strict and unvarying as the law of gravitation.

In contemplation of these well-defined laws and perfectly established facts of electricity, it would seem quite unnecessary to insist that the terms "current of electricity" and "passage of a current of electricity through the body" convey a perfectly well-understood meaning. They may not be scientifically correct expressions, but there is no doubt as to what is meant by the statute, to wit, that the convict shall be placed in and made a part of a circuit through which is made to pass an electric current of sufficient intensity to produce death instantly and painlessly.

So perfectly well assured are we that such a current may, without practical difficulty, be produced and applied, in view of the evidence in the case and of facts perfectly well known, that we frankly concede that the statute contains the implication that the death is to be produced instantly and painlessly. Aside from any legislative or constitutional utterance, the humanitarian spirit of the age demands that such words be read into the statute, and declares that they are clearly within the spirit of the enactment.

It is the glory, and often the defect of, great orators that they are able, at will, to transport themselves from the cold regions of fact and commonplace law to the realms of startling fancy. The counsel for the relator yields to the tendency of his genius oftimes. Instead of looking at the field of electrical science as it is, he prefers to regard it as a domain of "carbonizations," "mummifications," of the "tortures of the rack." He peoples it with monsters

> ———"worse
> Than fables yet have feigned or fear conceived,
> Gorgons, and Hydras and Chimeras dire."

We have perfect confidence, however, that the phantoms and doubts which he has tried to call up will disappear in the light of the evidence presented in the case, when that evidence is read in a judicial and scientific spirit.

V.

THE HARTUNG CASE.

The relator's counsel says that he is not sure that the infliction of death by electricity would produce torture, but that neither he or anyone else knows that it would not have that effect, and that, therefore, the courts ought to inquire what the fact would be, and refers to the Hartung Case (22 N. Y., 95), insisting that that decision yields warrant for such an inquiry.

Of course, his contention in this respect entirely ignores one of the most important functions of the Legislature — that of ascertaining and determining all facts necessary to legislation; and also ignores the presumption, irrebuttable here, that the Legislature has ascertained and determined such facts.

But the Hartung Case is in no sense authority for the counsel's contention. As he interprets that case, it authorizes the court to inquire what might *possibly* be the result of certain legislation, and having made such inquiry to give the prisoner the benefit of such possibility. The decision is not authority for such doctrine. The counsel also assumes that the sentence imposed in that case was imprisonment with the possibility merely of death thereafter. Such was not the sentence at all. The court distinctly held that the Legislature had attempted to subject the convict to a new and increased punishment, namely, *of a year's imprisonment and then death*, by a statute enacted after the offense was committed; that as to Hartung it was an *ex post facto* act, and, therefore, void; that the legislation retained the death penalty in full force. *Arguendo*, Judge Denio, in pronouncing the decision of the court, says that the Governor might not issue his warrant for death at all; so, too, under the former law, the Governor might continually reprieve or even commute the penalty, but the unmistakable meaning of the decision was as above stated, to wit, that the statute provided for punishment positively increased, and was as to Hartung *ex post facto*. In arriving at such decision the court did not at all inquire what might possibly be the effect of the sentence, but only what was its precise and unmistakable effect.

Moreover, in the Hartung Case, the unconstitutionality of the legislation was at once apparent upon a reading of the statute.

VI.

IF THE METHOD OF INFLICTION OF THE DEATH PENALTY SPECIFIED IN THE ACT OF 1888 BE UNCONSTITUTIONAL, THE AMENDMENTS OF THE CODE OF CRIMINAL PROCEDURE PROPOSED BY SUCH ACT, WHICH HAVE IN VIEW A NEW FORM OF CAPITAL PUNISHMENT, ARE ABSOLUTELY VOID AND INEFFECTUAL TO CHANGE THE LAW AS IT EXISTED PRIOR TO THE PASSAGE OF THE ACT OF 1888, AND MADE NO CHANGE THEREIN, AND DID NOT REPEAL ANY PART THEREOF PROVIDING FOR THE INFLICTION OF THE DEATH PENALTY.

AN UNCONSTITUTIONAL STATUTE IS NO LAW.

"Indeed, the term unconstitutional law, as employed in American jurisprudence, is a misnomer, and implies a contradiction; that enactment which is opposed to the Constitution being, in fact, no law at all."

Cooley's Const. Limitations, 3.

The validity of a statute is not affected by an amendment which is unconstitutional. The amendment is void and does not, by implication, repeal the original act.

Ex parte Davis, Cir. Ct., Dist. Ky.,
21 Fed. Rep., 396.

"An attempt to repeal such a provision by an unconstitutional exercise of legislative power would have the same effect as though no effort had been made to repeal that portion of the statute."

Smith v. Shilling, 95 N. Y., 131
Cooley on Const. Limitations, § 188.

And it is, therefore, confidently submitted that if the method of infliction of the death penalty specified in the act of 1888 be unconstitutional, then the repealing clause, section 11, "All acts and parts of acts inconsistent with the provisions of this act are hereby repealed," did not repeal the law prescribing the method of capital punishment as it existed prior to the act of 1888.

A repealing clause attached to a statute which contains unconstitutional provisions does not repeal portions of pre-existing statutes which are inconsistent with the void provisions of the act of which the repealing clause is a part.

Devoy v. Mayor, 35 Barb., 264, 270.
Id., 36 N. Y., 449, 451.
Harbeck v. Mayor, 10 Bos., 366.
Sullivan v. Adams, 3 Gray (Mass.), 476.
Shepardson v. M. and B. R. R. Co., 6 Wis., 605, 615.

Cooley on Constitutional Limitations says (section 186): "Great caution is necessary in some cases or the rule which was designed to ascertain and effectuate the legislative intent will be pressed to the extreme of giving effect to part of a statute exclusively when the legislative intent was that it should not stand except as a component part of the whole."

The repealing clause in the act of 1888 is a part of the general scheme of the statute, and cannot be separated therefrom. If such general scheme is unconstitutional, the repealing clause must fall with it and, therefore, is in itself void.

People v. Tiphane, 13 How. Pr., 74.

Therefore, even if the sentence imposed upon Kemmler were unconstitutional and void, he cannot be released upon *habeas corpus*, but must be remanded for proper sentence.

The penalty imposed by the Penal Code upon the crime of murder (section 186) is death. The amendments to the Code of Criminal Procedure, proposed by the act of 1888, did not in any way attempt to affect the procedure of trials of persons under indictment for murder. The *conviction*, *per se*, of Kemmler is entirely valid.

Where a person under *a valid conviction receives a sentence that is void* he is not entitled to a discharge on *habeas corpus*, *but must be remanded into custody that the trial court may deal with him according to law.*

People ex rel. v. Kelley, 97 N. Y., 212, 215.
People ex rel. v. Gilbert, 96 N. Y., 631.
See, also, People ex rel. v. Jacobs, 66 N. Y., 8, 10, distinguishing People ex. rel. Tweed v. Liscombe, 60 N. Y., 559.

VII.

The propositions asserted in the foregoing point are not in conflict with the conclusions reached by the Court of Appeals in the case of Hartung v. The People referred to (*supra*). (See reports of this case, 22 N. Y., 95; 23 How. Pr., 314; 26 N. Y., 167; 28 N. Y., 400.)

The distinctions between the Hartung case and the case of Kemmler, here before the court, are marked and obvious.

Hartung was tried, convicted and sentenced under the Revised Statutes. The execution of her sentence was suspended by writ of error. Before the determination of that writ and after the day fixed for her execution had passed *the legislature by direct and precise enactment repealed the provision of the Revised Statutes directing that persons convicted of murder should be hanged* without specifying any substitute for that penalty, but imposing a punishment by imprisonment additional to the death penalty. *The repeal of the law providing for hanging was directly applicable to her case.* The enactment providing for additional punishment and an unspecified death penalty were clearly *ex post facto* as to her, although valid enough as to other persons not in her exact situation.

In the present case, then if the statute attacked by the prisoner is constitutional, there is an end to his contention at once and he must suffer death by the application of electricity. If it is unconstitutional, it effects no repeal or amendment of the Code of Criminal Procedure, and therefore, he must, under perfectly well fixed rules of law, be remanded for sentence under the unrepealed and unamended Code of Criminal Procedure.

VIII.

The order of the General Term should be affirmed.

CHAS. F. TABOR,
Attorney-General.